



University
of Exeter

Y Farn am Afancod Ewrasiaidd yn Byw yn Wyllt yng Nghymru:
Canlyniadau Arolwg Cyhoeddus Ar-lein

Perceptions of Eurasian Beavers Living Wild in Wales:
Results of an Online Public Survey

Adroddiad i'w gyflwyno i Ymddiriedolaeth Natur Gogledd Cymru^a

Report for submission to North Wales Wildlife Trust^b

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^a Bydd Ymddiriedolaeth Natur Gogledd Cymru yn cyflwyno'r adroddiad hwn i Gyfoeth Naturiol Cymru yn y fformat y cyflwynir yma.

^b North Wales Wildlife Trust will submit this report to Natural Resources Wales in the format in which it is presented here.

Nodiadau pwysig i bob darllenydd

Barn y rhai a gymerodd ran yn yr ymchwil yw'r farn a amlinellir yn yr adroddiad hwn, fel y'i mynegwyd i'r tîm ymchwil drwy arolwg cyhoeddus ar-lein. Nid yw o fewn cylch gorchwyl yr ymchwilwyr i benderfynu a yw safbwynt yn "gywir" neu'n "anghywir". Efallai y bydd tystiolaeth wyddonol yn sail i ddatganiadau o "ffaith" gan gyfranogwyr neu efallai na fydd tystiolaeth o'r fath yn sail iddynt.

Mae'r adroddiad hwn yn ymdrin â safbwyntiau a barn **yn unig**. Safbwyntiau pobl real yw'r rhai y manylir arnynt ar y tudalennau hyn, ac efallai na fydd y darllenydd yn cytuno â'r safbwyntiau hyn. Anogir pob darllenydd i ddarllen yr adroddiad hwn gyda pharch i'r holl safbwyntiau amrywiol a gyflwynir yma, beth bynnag yw eu barn hwy.

Safbwyntiau'r cyfranogwyr fel y'u mynegwyd i'r ymchwilwyr drwy'r arolwg cyhoeddus ar-lein yw'r safbwyntiau yn yr adroddiad hwn. Efallai nad ydynt o reidrwydd yn adlewyrchu barn bersonol unrhyw aelod o'r tîm ymchwil.

Er mwyn cydymffurfio â'r dull ymchwil yn wrthrychol ac i sicrhau'n foesebol bod gan yr holl drigolion gyfle cyfartal i gymryd rhan, ni all yr ymchwilwyr ond adrodd ar ymatebion a dderbyniwyd drwy gyfrwng yr arolwg yn y ddogfen hon. I gael rhagor o wybodaeth am rôl yr ymchwilwyr, edrychwch ar adran iii ar dudalennau 15 i 16.

Dyfynnu

Dylid dyfynnu'r ddogfen hon fel a ganlyn:

Auster, R.E., Frith, K., Barr, S.W., a Brazier, R.E. 2023. *Y Farn am Afancod Ewrasiaidd yn Byw yn Wyllt yng Nghymru: Canlyniadau Arolwg Cyhoeddus Ar-lein*. Prifysgol Caerwysg / University of Exeter.

Cyllid

Comisiynwyd yr astudiaeth hon gan Ymddiriedolaeth Natur Gogledd Cymru gyda chyllid a dderbyniwyd drwy Gymunedau Gwledig Llywodraeth Cymru - Rhaglen Datblygu Gwledig 2014-2020, a ariennir gan Gronfa Amaethyddol Ewrop ar gyfer Datblygu Gwledig a Llywodraeth Cymru. Ymgwymerwyd â'r prosiect gan ymchwilwyr annibynnol o Brifysgol Caerwysg; nid oedd Ymddiriedolaeth Natur Gogledd Cymru yn goruchwyllo'r dadansoddiad.

Cydnabyddiaeth

Hoffai'r awduron ddiolch i bob un o'r 4387 o gyfranogwyr a gymerodd ran yn yr ymchwil, yn ogystal â phawb a rannodd y gwahoddiad ymchwil o fewn eu rhwydweithiau.

Important notes for all readers

The opinions outlined in this report are those of research participants, as articulated to the research team through an online public survey. It is not within the remit of the researchers to determine whether a viewpoint is “correct” or “incorrect”. Participant statements of “fact” may or may not be scientifically evidenced.

This report deals with perspectives and opinions **only**. Those detailed within these pages are the views of real people, and the reader may or may not agree with these perspectives. All readers are encouraged to read this report with respect for all the diverse opinions that are herein presented, regardless of their own view.

Views presented in this report are those of participants as they have been articulated to the researchers through the online public survey. They may not necessarily reflect the personal views of any member of the research team.

To comply with the research method objectively and to ethically ensure all residents had equal opportunity to participate, the researchers can only report on responses received via the survey medium within this document. For more information about the role of the researchers, see section iii on pages 15-16.

Citation

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CRYNODEB GWEITHREDOL

Cefndir

- Comisiynwyd Prifysgol Caerwysg gan Ymddiriedolaeth Natur Gogledd Cymru i gynnal arolwg ar-lein o agweddau'r cyhoedd tuag at afancod sy'n byw yn wyllt yng Nghymru.
- Rôl y timau ymchwil oedd cwblhau'r arolwg hwn ac adrodd yn ffeithiol ar y canlyniadau yn unig. Adroddiad canlyniadau yw hwn sy'n rhoi trosolwg o ganfyddiadau ac adlewyrchu'r ymchwilwyr.
- Mae'r tîm ymchwil yn annibynnol ar Ymddiriedolaeth Natur Gogledd Cymru ac nid ydynt yn cynnig / gwrthwynebu ailgyflwyno afancod i Gymru. Nid ydynt chwaith yn ymwneud â gwneud penderfyniadau am ddyfodol afancod yng Nghymru. Dim ond gweithgareddau y bu'r ymchwilwyr yn ymwneud â hwy sy'n cael eu hadrodd yn y ddogfen hon. Felly, ni ddylai rhagdybiaethau ynghylch pa ymgysylltu neu ymgynghori arall sydd wedi digwydd neu beidio gael eu gwneud ar sail y ddogfen hon yn unig.
- Mae'r ymchwilwyr yn bwriadu cynnal adolygiad cymheiriaid academiaidd o'r canfyddiadau hyn. Fel arall, nid oes gan yr awduron unrhyw gynlluniau ar hyn o bryd ar gyfer ymchwil cysylltiedig pellach yng Nghymru; mae cyflwyno'r adroddiad hwn yn nodi diwedd eu cyfranogiad presennol.
- Cynhaliwyd yr arolwg ar-lein yn ystod gwanwyn 2023 a gellid ei gwblhau yn y Gymraeg neu yn Saesneg. Roedd y cwestiynau'n seiliedig ar ymchwil blaenorol a adolygwyd gan gymheiriaid, ac roedd holl drigolion Cymru yn gymwys i gymryd rhan fel unigolion. Mae manylion y dull, gan gynnwys y cyfyngiadau, wedi'u darparu.

Canlyniadau

- Derbyniodd yr arolwg 4387 o ymatebion, gan gynnwys 45 a gyflwynwyd yn y Gymraeg.
- Derbyniwyd 3783 o ymatebion gan unigolion a nododd eu bod yn byw yng Nghymru. Cafwyd 604 o ymatebion gan unigolion a nododd nad oeddent yn byw yng Nghymru neu nid oeddent wedi ateb y cwestiwn. (Mae canlyniadau trigolion Cymru wedi cael eu blaenoriaethu fel ffocws y gwaith hwn a'u canlyniadau hwy sydd wedi'u cynnwys yng ngweddill y Crynodeb Gweithredol hwn.)
- Roedd ymatebwyr yr arolwg yn gyfarwydd iawn ag afancod; mewn pum cwestiwn aml-ddewis, llwyddodd mwy na 78% o'r ymatebwyr a atebodd bob

un o'r pump i gael o leiaf bedwar ateb yn gywir, ac fe wnaeth mwy na 98% o'r rhai a atebodd yn gywir adnabod llun o afanc o ddewis o bedwar anifail gwahanol.

- Teimlai dros hanner yr ymatebwyr a atebodd y gallent fynegi eu barn lle gallai ddylanwadu ar y rhai sy'n gwneud penderfyniadau (56.71%).
 - Ymhlith y rhai a deimlai y gallent, y rhesymeg mwyaf cyffredin a roddwyd oedd: bod unigolion yn teimlo bod ganddynt brofiad perthnasol i'w gyfrannu; roedd unigolion yn teimlo eu bod yn cael eu hysbysu neu fod ganddynt wybodaeth am bwnc perthnasol i'w gyfrannu; neu nododd yr unigolion eu bod yn bobl y byddai afancod yn effeithio arnynt.
 - Ymhlith y rhai a deimlai na allent, y rhesymeg mwyaf cyffredin oedd: bod unigolion yn teimlo nad oedd ganddynt ddigon o wybodaeth i allu cyfrannu; bod unigolion yn teimlo eu bod wedi'u datgysylltu, yn ddrwgdybus ohonynt, neu'n ddi-rym mewn prosesau neu gyrff gwneud penderfyniadau; neu teimlai unigolion y gallai grwpiau penodol gael mwy o ddylanwad wrth wneud penderfyniadau.
- Gofynnwyd i'r cyfranogwyr a oeddent yn cefnogi neu ddim yn cefnogi afancod sy'n byw yn wyllt yng Nghymru. Cyflwynir ac archwilir y ffigurau cyffredinol mewn perthynas â: iaith cyflwyno'r arolwg; rhywedd; grŵp oedran; cefndir galwedigaethol; y rhanbarth y mae'r ymatebydd yn byw ynndo; a ble clywodd yr ymatebwyr am yr arolwg.
- Ymhlith y gronfa hon o ymatebwyr, roedd mwyafrif mawr o'r cyfranogwyr yn cefnogi afancod sy'n byw yn wyllt yng Nghymru (88.70%).
- Roedd grwpiau oedd yn *fwy* tebygol yn ystadegol o gefnogi afancod sy'n byw yn wyllt yng Nghymru nag o wrthwynebu, o gymharu â'r gronfa o ymatebwyr sy'n weddill, yn cynnwys:
 - ymatebwyr benywaidd;
 - ymatebwyr 25 i 34 oed;
 - ymatebwyr a oedd yn byw yng Nghaerdydd;
 - ymatebwyr yr oedd eu cefndir galwedigaethol yn 'Gwasanaeth Cymunedol a Chymdeithasol', 'Addysg', 'Amgylchedd, Natur a Bywyd Gwyllt', neu 'Swyddfa a Chymorth Gweinyddol';
 - ac ymatebwyr a glywodd am yr arolwg drwy 'Neges ar Gyfryngau Cymdeithasol' neu gan 'Sefydliad Bywyd Gwyllt neu Natur'.
- Roedd grwpiau oedd yn *llai* tebygol yn ystadegol o gefnogi afancod sy'n byw yn wyllt yng Nghymru nag o wrthwynebu, o gymharu â'r gronfa o ymatebwyr sy'n weddill, yn cynnwys
 - ymatebwyr gwrywaidd;
 - ymatebwyr 65 i 74 oed;

- ymatebwyr a oedd yn byw yn Sir Ddinbych, yn byw ym Mhowys, neu'n byw yn Wrecsam;
 - ymatebwyr yr oedd eu cefndir galwedigaethol yn 'Ffermio ac Amaethyddiaeth' neu 'Pysgodfeydd a Dyframaethu';
 - ac ymatebwyr a glywodd am yr arolwg gan 'Sefydliad Ffermio' neu gan 'Sefydliad Pysgota'.
 - (Yn ogystal, canfuwyd bod ymatebwyr a nododd nad oeddent yn byw yng Nghymru yn llai tebygol yn ystadegol o gefnogi afancod sy'n byw yn wyllt yng Nghymru).
- Roedd y prif resymau a roddwyd dros gefnogi yn cynnwys (ymhlith eraill): gwella bioamrywiaeth a chynefinoedd gwlybdir; rheoli dyfrffyrdd (e.e. lliniaru rhag llifogydd); a gweld afancod fel rhywogaeth frodorol.
 - Roedd y prif resymau a roddwyd dros wrthwynebu yn cynnwys (ymhlith eraill): effeithiau negyddol ar bysgod mudol; tarfu ar ecoleg gyfredol; ac effeithiau negyddol ar systemau afonydd a llifogydd.
 - Roedd y prif resymau a roddwyd gan y rhai a oedd yn ansicr ynghylch a oeddent yn cefnogi afancod sy'n byw yn wyllt yng Nghymru yn cynnwys (ymhlith eraill): ddim yn teimlo'n ddigon gwybodus i benderfynu; angen mwy o wybodaeth am effeithiau posibl; a phryderon ynghylch sut gellir rheoli afancod a'u heffeithiau.
 - Gwelwyd perthynas rhwng a oedd ymatebwyr yn cefnogi afancod sy'n byw yn wyllt yng Nghymru a lefel y warchodaeth gyfreithiol yr oeddent yn teimlo y dylid ei rhoi os caiff afancod eu hailgyflwyno (a'r opsiynau oedd gwarchodaeth gyfreithiol Gadarn, gwarchodaeth Gyfyngedig neu Ddim gwarchodaeth).
 - Dewisodd mwyafrif y rhai a oedd yn gefnogol 'Warchodaeth Gyfreithiol Gadarn' (91.23%).
 - Dewisodd mwyafrif y rhai nad oeddent yn gefnogol 'Dim Gwarchodaeth Gyfreithiol' (69.48%).
 - Ymhlith y rhai a oedd yn cefnogi gwarchodaeth gyfreithiol gadarn, roedd y tri rheswm mwyaf cyffredin a roddwyd yn cynnwys: i amddiffyn afancod rhag erledigaeth neu ladd; rhoi amser i afancod sefydlu poblogaeth; neu i sicrhau bod poblogaethau o afancod yn goroesi.
 - Ymhlith y rhai a oedd yn cefnogi gwarchodaeth gyfreithiol gyfyngedig, roedd y tri rheswm mwyaf cyffredin a roddwyd yn cynnwys: angen gallu rheoli gwrthdaro neu reoli'r boblogaeth; i amddiffyn afancod rhag erledigaeth; neu roedd cyfaddawd rhwng rhesymau dros lefelau cadarnach neu wannach o warchodaeth (e.e. awgrymu cydbwysedd rhwng amddiffyn afancod rhag niwed a hefyd gallu rheoli effeithiau negyddol).

- Ymhlith y rhai a oedd yn cefnogi dim gwarchodaeth gyfreithiol, roedd y tri rheswm mwyaf cyffredin a roddwyd yn cynnwys: angen gallu rheoli effeithiau neu boblogaethau o afancod; afancod yn achosi difrod; neu wrthwynebiad cyffredinol i ailgyflwyno afancod.
- O blith rhestr o 14 o dechnegau i reoli afancod, y tri a gefnogwyd fwyaf oedd: addysg; taliadau i berchnogion tir i roi cartref i afancod ar eu tir; ac iawndal am golledion a achosir gan weithgarwch afancod. Y tri a gefnogwyd leiaf oedd: dim rheolaeth; annog peidio ag adeiladu argaeau; a rheolaeth angheuol.
 - Roedd hyn yn amrywio rhwng y rhai a oedd yn cefnogi neu'n gwrthwynebu afancod yn byw yn wyllt yng Nghymru. Roedd y gefnogaeth fwyaf ymhlith y rhai a oedd yn gefnogol i afancod neu heb benderfynu i addysg, a'r gefnogaeth fwyaf ymhlith y rhai a oedd yn gwrthwynebu i reolaeth angheuol. Roedd y gefnogaeth leiaf ymhlith y rhai a oedd yn gwrthwynebu neu heb benderfynu i ddim rheolaeth, a'r gefnogaeth leiaf ymhlith y rhai a oedd yn gefnogol i reolaeth angheuol.

Adlewyrchu

- Nid yw'r tîm ymchwil yn gwneud penderfyniadau ynghylch dyfodol afancod yng Nghymru. Yn yr adroddiad hwn fodd bynnag, cyflwynir tair elfen o adlewyrchu mewn ymateb i'r canlyniadau.
- Adlewyrchu 1: Mae canlyniadau'r arolwg hwn yn gyson â chanlyniadau arolygon blaenorol tebyg a gynhaliwyd mewn cyd-destunau eraill ledled Prydain Fawr (a ddisgrifir yn Nhabl 1).
- Adlewyrchu 2: Mae polareiddio gweladwy yn y canfyddiadau a fynegir yma. Gallai trin dyfodol afancod yng Nghymru fel penderfyniad 'ie neu na' deuaidd gynyddu tensiynau cymdeithasol presennol; mae penderfynu ailgyflwyno yn creu risg o densiwn gyda'r rhai a allai deimlo bod *presenoldeb* afancod (ac unrhyw heriau cysylltiedig) wedi cael ei orfodi arnynt, tra bo penderfyniad i beidio ag ailgyflwyno yn creu risg o densiwn gyda'r rhai a allai deimlo bod *absenoldeb* parhaus afancod (ac unrhyw fanteision dilynol) wedi cael ei orfodi arnynt. Mae *absenoldeb* unrhyw benderfyniad yn arwain hefyd at risg o densiynau cymdeithasol, fel y dangoswyd gan y rhai sydd eisoes wedi datblygu.
- Adlewyrchu 3: Os bydd afancod yn bresennol neu'n absennol yn y dyfodol, bydd angen i'r drafodaeth fod yn sensitif a symud y tu hwnt i ddadl ddeuaidd, gan ddarparu cyfleoedd ar gyfer gwrando a deialog rhwng y ddwy ochr. Bydd hyn yn heriol a bydd yn dibynnu ar barodrwydd y gymuned a rhanddeiliaid i gymryd rhan, ac efallai y bydd rhai yn ystyried cynnal unrhyw

drafodaeth yn gyfystyr â bod wedi gwneud penderfyniad. Fodd bynnag, gall prosesau cyfranogol sy'n symud y tu hwnt i ddadl 'ie neu na' leihau'r risg o densiynau cynyddol a chynyddu'r tebygolrwydd o ganlyniadau cymdeithasol gwell yn yr hirdymor. Yn y cyd-destun hwn, gellid hwyluso proses gyfranogol o amgylch dwy senario ochr yn ochr:

- 1) trafodaeth drawsbleidiol ar strategaethau ar gyfer cydfodoli pe bai'r rhywogaeth yn cael caniatâd ffurfiol i fyw yn wyllt yng Nghymru, gan anelu at ddull gweithredu a fydd yn darparu cymorth effeithiol a dderbynnir yn gymdeithasol i'r rhai y gallai fod effaith negyddol arnynt, gan alluogi cyfleoedd ar gyfer cronni manteision hefyd;
- 2) os *na* fyddant yn cael eu hailgyflwyno'n weithredol, gallai deialog drawsbleidiol ddatblygu strategaethau ar gyfer ymatebion a dderbynnir yn gymdeithasol i achosion lle gellir adnabod afancod sy'n byw yn rhydd yng Nghymru, mewn achosion o wasgaru naturiol ar draws y ffin neu mewn achosion lle mae tarddiad eu poblogaeth yn anhysbys.

EXECUTIVE SUMMARY

Background

- The University of Exeter were commissioned by North Wales Wildlife Trust to undertake an online survey of individual public attitudes to beavers living wild in Wales.
- The research teams' role has been to complete this survey and factually report upon the outcomes only. This is a results report that provides an overview of findings and researcher reflections.
- The research team are independent of North Wales Wildlife Trust and are not proposing / opposing beaver reintroduction to Wales. Nor are they involved in decision-making about the future of beavers in Wales. Only activities the researchers have been involved in are reported in this document. Thus, assumptions about what other engagement or consultation may or may not have taken place should not be made based on this document alone.
- The researchers intend to subject these findings to academic peer review. Otherwise, the authors have no current plans for further related research in Wales; submission of this report marks the end of their current involvement.
- The online survey took place in spring 2023 and could be completed in either Welsh or English. Questions were informed by previous peer-reviewed research, and all residents in Wales were eligible to take part as individuals. Details of the method including limitations are provided.

Results

- The survey received 4387 responses, including 45 submitted in Welsh.
- 3783 responses were received from individuals who identified as residents in Wales. 604 responses were received from individuals who identified as not resident in Wales or who did not answer the question. (Results from residents in Wales are prioritised as the focus of this work and it is their results that are included in the remainder of this Executive Summary.)
- Survey respondents exhibited good familiarity with beavers; in five multiple-choice questions, over 78% of respondents who answered all five achieved at least four correct answers, and over 98% who answered correctly identified an image of a beaver from a choice of four different animals.
- Over half of the respondents who answered felt able to express their opinion where it may influence decision-makers (56.71%).

- Among those who felt that they could, the most common reasoning given was that: individuals felt they had relevant experience to contribute; individuals felt informed or had knowledge of a relevant topic to contribute; or individuals identified as someone who would be affected by beavers.
 - Among those who felt that they could not, the most common reasoning was that: individuals felt they did not have sufficient knowledge to be able to contribute; individuals felt disenfranchised, distrustful of, or disempowered in decision-making processes or bodies; or individuals felt that particular groups may have more influence in decision-making.
- Participants were asked whether they supported or did not support beavers living wild in Wales. Overall figures are presented and examined in relation to: the language of survey submission; gender; age group; occupational background; region in which respondent is resident; and where respondents heard about the survey.
 - Among this respondent pool, a high majority of participants supported beavers living wild in Wales (88.70%).
 - Groups statistically *more* likely to support beavers living wild in Wales than oppose, relative to the remaining respondent pool, included:
 - female respondents;
 - respondents aged 25-34;
 - respondents who were resident in Cardiff / Caerdydd;
 - respondents whose occupational background was in ‘Community & Social Service’, ‘Education’, ‘Environment, Nature & Wildlife’, or ‘Office & Administrative Support’;
 - and respondents who heard about the survey from a ‘Social Media Post’ or from a ‘Wildlife or Nature Organisation’.
 - Groups statistically *less* likely to support beavers living wild in Wales than oppose, relative to the remaining respondent pool, included:
 - male respondents;
 - respondents aged 65-74;
 - respondents who were resident in Denbighshire / Sir Ddinbych, resident in Powys, or resident in Wrexham / Wrecsam;
 - respondents whose occupational background was in ‘Farming & Agriculture’ or ‘Fisheries & Aquaculture’;
 - and respondents who heard about the survey from a ‘Farming Organisation’ or from a ‘Fishing Organisation’.
 - (Additionally, respondents who were not identified as resident in Wales were found to be statistically less likely to support beavers living wild in Wales).

- Top reasons given for support included (among others): improving biodiversity and wetland habitats; waterway management (e.g. flood alleviation); and a view of beavers as a native species.
- Top reasons given for opposition included (among others): negative impacts on migratory fish; disturbance to current ecology; and negative impacts on river systems and flooding.
- Top reasons given by those who were unsure whether they supported beavers living wild in Wales included (among others): not feeling well enough informed to decide; needing more information on potential impacts; and concerns over how beavers and their impacts may be managed.
- There was a relationship observed between whether respondents support beavers living wild in Wales and the level of legal protection they felt should be applied if beavers are reintroduced (with the options of Strong, Limited or No legal protection).
 - The majority of those who were supportive selected 'Strong Legal Protection' (91.23%).
 - The majority of those who were not supportive selected 'No Legal Protection' (69.48%).
- Among those supportive of strong legal protection, the three most frequent reasons given included: protection of beavers from persecution or killing; enabling time for beavers to establish a population; or to ensure beaver populations survive.
- Among those supportive of limited legal protection, the three most frequent reasons given included: a need to be able to manage conflicts or exercise population control; to protect beavers from persecution; or there was a trade-off between reasons for stronger or weaker levels of protection (e.g. suggesting a balance between protecting beavers from harm whilst being able to manage negative impacts).
- Among those supportive of no legal protection, the three most frequent reasons given included: a need to be able to manage impacts or beaver populations; beavers cause damage; or general opposition to beaver reintroduction.
- From a list of 14 beaver management techniques, the three most supported were: education; payments for landowners to host beavers on their land; and compensation for losses caused by beaver activity. The three least supported were: no management; discouraging dam building; and lethal control.
 - This varied between those who supported or opposed beavers living wild in Wales. Most supported among those supportive of beavers or

undecided was education, whereas most supported among those opposed was lethal control. Least supported among those who were opposed or undecided was no management, whereas least supported among those who were supportive was lethal control.

Reflections

- The research team are not decision-makers regarding the future of beavers in Wales. In this report however, three reflections are given in response to results.
- Reflection 1: The results of this survey are consistent with those of similar previous surveys undertaken in other contexts throughout Great Britain (described in Table 1).
- Reflection 2: There is observable polarisation in the perceptions here expressed. Treating the future of beavers in Wales as a binary ‘yes or no’ decision risks escalating existing social tensions; a decision to reintroduce risks tension with those who may feel that beaver *presence* (and any associated challenges) has been imposed upon them, whilst a decision not to reintroduce risks tensions with those who may feel that continued beaver *absence* (and any subsequent benefits) has been imposed upon them. Absence of any decision also incurs risk of social tensions, as demonstrated by those that have already developed.
- Reflection 3: Whether beavers will be present or absent in future, discussion will need to be sensitive and move beyond binary debate, providing opportunities for cross-party listening and dialogue. This will be challenging and will rely on the community and stakeholder willingness to take part, and some may view having any discussion as being synonymous with a decision having been taken. However, participatory processes that move beyond ‘yes or no’ debate may reduce the risk of escalating tensions and increase the likelihood of better long-term social outcomes. In this context, a participatory process could be facilitated around two scenarios in parallel:
 - 1) cross-party discussion of strategies for coexistence if the species were to be formally permitted to live wild in Wales, aiming for an approach that will provide socially accepted and effective support for those who may be negatively affected, whilst enabling opportunities for benefits to accrue;
 - 2) if they are *not* to be actively reintroduced, cross-party dialogue could develop strategies for socially accepted responses to instances where free-living beavers may be identified in Wales, in both instances of natural dispersal across the border or instances when their source population is unknown.

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I. BACKGROUND

The Eurasian beaver (*Castor fiber*) is a semi-aquatic mammal which was formerly native to Wales and Great Britain. They were hunted to regional extinction approximately 500 years ago for fur, meat, and castoreum (a secretion from a particular scent gland) ¹⁻³.

At the time of writing, beavers are not officially recognised as “resident” in Wales. They do not currently have legal protected status and are listed on Schedule 9 of the Wildlife and Countryside Act, thereby meaning a license is required to release beavers into the wild. Decisions regarding reintroduction are a devolved matter, and Natural Resources Wales are responsible for assessing license applications for beaver releases into either an enclosure or the wild in Wales ⁴. There are a small number of beaver enclosures in Wales, including a licensed enclosure at Cors Dyfi Nature Reserve for which Montgomeryshire Wildlife Trust are the license holders ⁵.

There are currently no licensed wild beaver populations in Wales and no national management framework is in place. There are, however, reports of individual or small populations of beavers living wild in some areas ⁶. It is possible these originate from escapes, unlicensed releases, or from natural dispersal from legally protected populations in England. However, the sources are currently unknown.

At the time of the study outlined in this report, North Wales Wildlife Trust (NWWT) are working towards re-establishing beavers in Wales. (The authors of this report are not associated with NWWT and are not involved in proposing nor opposing a reintroduction).

In other parts of Great Britain outside Wales, beavers have recently been reintroduced:

- Following a licensed Trial and an assessment of the impact of a wild beaver population of unknown origin, beavers were listed as European Protected Species in Scotland in 2019 ⁷⁻¹⁰. A new strategy for beavers in Scotland was co-created by stakeholders and published in 2022 ¹¹. This includes provision for license applications for the translocation^c of beavers within Scotland ¹².
- In England, beavers were granted legal protection in 2022 following a licensed beaver trial ¹³⁻¹⁶. The UK Government’s Department for Environment, Food and Rural Affairs have issued guidance on how to manage beavers and activities for which licenses are required ¹⁷. At present, licenses for new wild releases are not being issued but it is possible to apply for a license for release into an enclosure ¹⁷. Outside of the River Otter (where the licensed Trial took place and where beavers are now permitted to live and disperse naturally in the wild), small beaver populations of unknown

^c Translocation refers to the intentional movement of individual animals or plants to another location. Reintroduction is one form of translocation, in which the species is being moved to an area in which it previously existed but is now locally extinct.

origins have been identified in other river catchments, and there are at least 25 licensed beaver enclosures ^{13,18,19}.

II. REPORT AIM

As an independent research team at the University of Exeter, the authors of this report were commissioned to capture an overview of attitudes to beaver reintroduction that exist in Wales. Hence, this is a factual results report that outlines the results of a nationwide, online perceptions survey of individuals undertaken in Spring 2023. This report will outline the findings and explore attitudes of participants in response to the background variables of: gender; age group; occupation; region of Wales in which participants are resident; and where respondents heard about the survey.

The survey provided an opportunity for any resident in Wales to share their views as individuals, rather than as interest group or organisational representatives. Engagement with stakeholder groups or representatives is also important in reintroductions. This report however is focused on public opinion and should be understood within this context.

The research team are aware that North Wales Wildlife Trust have undertaken workshops with stakeholders with an independent facilitator. The authors of this report have not been involved so these workshops are not reported on or evaluated here. For details, please refer to the relevant reports by the independent facilitator^{20,21} or contact North Wales Wildlife Trust for more details.

III. CLARIFYING THE ROLE OF THE RESEARCHERS AND THIS REPORT

The authors were commissioned to undertake a survey of public perceptions towards beavers in Wales, in an independent research-only capacity. They are not themselves proposing a beaver reintroduction, nor are they decision-makers in relation to the future of beavers in Wales. The authors were commissioned to report on those results **only** and this report should be considered within this context.

Neither the authors nor the University of Exeter are part of a reintroduction project in Wales. The researchers are **not** involved in proposing or opposing a beaver reintroduction, and it is not within the scope of this report to determine whether beavers should or should not be formally reintroduced to Wales.

The study was informed by a previous, peer-reviewed survey ²² and completed in accordance with ethical approval given by the University of Exeter Geography Ethics Committee (see [section vii](#)). North Wales Wildlife Trust had no oversight of the analyses presented within these pages.

Outside of the survey, the research team received several email communications from various individuals and groups that wished to report on related information or make representations on behalf of an organisation. To remain within contract, to comply with the research method objectively, and to ethically ensure all residents had equal opportunity to participate, the researchers can only report on responses received via the survey medium within this document. (Any further representations or sharing of information should be directed to parties involved in a reintroduction proposal or representatives who are in a decision-making role).

It is the research teams' intention to produce a subsequent text to follow this report, to subject the research to external academic peer review. Except for this upcoming text, whilst it is possible that they may undertake research activities in future, the authors have no current plans for further beaver-related research in Wales. As such, they will no longer be involved beyond the point of this report's submission.

As the authors have no further involvement, other engagement or social feasibility activities undertaken by other parties are not reported on within these pages. For this reason, it should **not** be assumed that other activities either have or have not taken place based upon this report document alone.

IV. PUBLIC SURVEYS IN REINTRODUCTIONS

The International Union for the Conservation of Nature have issued Guidelines for Reintroductions and Other Conservation Translocations^d ²³. These are commonly accepted guidelines for good practice, and Natural Resources Wales state that proposals for any beaver release should be developed in accordance ⁴.

Section 5.2 of the Guidelines highlight the need for a social feasibility assessment in reintroductions, and include the following under point 2 (on page 11):

“Human communities in or around a release area will have legitimate interests in any translocation. [...] translocation planning should accommodate the socio-economic circumstances, community attitudes and values, motivations and expectations, behaviours and behavioural change, and the anticipated costs and benefits of the translocation.” ²³

It is advisable that mixed-method approaches to assessing social feasibility are employed, as different approaches will have particular merits and limitations ²⁴. Public surveys are one commonly used tool to assess social feasibility. If relied upon in isolation, there are limitations in that they may not be able to identify underlying reasons for certain views, explore points made in depth, or account for

^d Translocation refers to the intentional movement of individual animals or plants to another location. Reintroduction is one form of translocation, in which the species is being moved to an area in which it previously existed but is now locally extinct.

power dynamics within or between stakeholder groups ²⁴. They are nonetheless a useful tool for three primary purposes:

1. They provide a useful overview of community attitudes and values ^{22,24-26};
2. They can be used to identify areas for further investigation, or key groups with which to undertake further engagement ^{22,24};
3. If a release site encompasses a large area, it may be difficult to engage with a human population on a one-to-one basis. In these instance, public surveys can provide opportunities for individuals who may be hard to reach or may not otherwise have an opportunity to share their view to be involved ²².

In this report, the survey context is the proposed reintroduction of a large, impactful animal in a reintroduction which would be considered to be of national significance. Hence, an online public survey was chosen to provide an opportunity for individuals on a nationwide scale.

This survey was an opportunity to gather an overview of the perceptions of residents in Wales. Whilst this will be one form of evidence, this should not be considered as the only piece of evidence required for decisions regarding beavers in Wales.

The researchers are aware that North Wales Wildlife Trust (and/or other organisations) are undertaking further activities to investigate the social feasibility of beaver reintroduction in Wales ^{20,21}. These activities are separate to and beyond those of this research team, and it is therefore outside of contract scope for the researchers to report on or to analyse the effectiveness of those activities in this document. For queries relating to these activities, it is advised that the reader contacts North Wales Wildlife Trust.

V. PREVIOUSLY CONDUCTED BEAVER PERCEPTION SURVEYS IN GREAT BRITAIN

Prior to this survey, several other survey studies have investigated perceptions towards beaver reintroduction across and within Great Britain. Table 1 provides an overview of several key perception survey studies from the contexts of Wales, Scotland, England, and Great Britain as a whole.

As the aim of this report is to outline findings related to perceptions expressed through a national public survey, examples given in Table 1 prioritise studies which have employed survey approaches. This table is **not** comprehensive, for several other studies have been undertaken including on more localised levels. Other methods have also investigated a variety of social and socioeconomic aspects of beaver reintroduction and management on national and local scales^e.

^e For example, Q-Methodology has been used to explore perspectives of anglers in the River Otter Beaver Trial ³⁵.

Table 1. Overview of key perception studies regarding beaver reintroduction in Wales, Scotland, England, and across Great Britain. (This table is not comprehensive; further surveys and social and socioeconomic studies have taken place in all these regional contexts).

REGION	REPORT	WHEN	ANALYSIS	KEY FOCUS	ADDITIONAL NOTES
Wales	Welsh Beaver Assessment Initiative Report: An Investigation into the feasibility of reintroducing European Beaver (<i>Castor fiber</i>) to Wales ²⁷	Pre-reintroduction application, 2012	Qualitative interviews with stakeholder organisations No. responses unclear but 25 organisations are listed	Whether organisations have a position on beaver reintroduction and perceptions of both benefits (including how they may be achieved) and concerns (including how they may be allayed)*	
	The Reintroduction of European beaver (<i>Castor fiber</i>) to Wales: a stakeholder opinion survey ²⁸	Pre-reintroduction application, 2004	Stakeholder opinion survey of twenty-one questions (and qualitative survey of experts and academics). 159 responses to stakeholder opinion survey (and three experts and academics).	To investigate and compare opinions of stakeholders on beaver reintroduction in three study sites: the Teifi Valley; Gwendraeth Fawr; and Conwy.	Student thesis. Stakeholder groups included: environmental managers; anglers and fisheries; forestry and woodland managers; landowners, smallholders and farmers; and tourism and leisure.
Scotland	Re-introduction of the European Beaver to Scotland. Results of a public consultation ²⁹	Pre-reintroduction application, 1998	Survey of two quantitative questions, following the provision information 5229 responses total between three sampling groups	Would respondents support a proposal to restore the beaver to Scotland, and would they like it to occur in the next 3 years (after survey). Compares results to individuals' areas of interest.	Three sampling groups included identified 'interested' organisations and members of the public

REGION	REPORT	WHEN	ANALYSIS	KEY FOCUS	ADDITIONAL NOTES
	Trial reintroduction of the European beaver to Knapdale, Mid-Argyll: Local consultation report: 1 October - 30 November 2007 ³⁰	Pre-reintroduction application, 2007	Survey of two quantitative questions (following leaflet), including opportunity for comments 466 responses	Whether respondents would like to see beavers in Scotland and whether they would support a trial in Knapdale, Mid-Argyll	Consultation forms were also available at two public engagement events which saw approximately 170 people attend (included in the figure of 466 responses)
	The Scottish Beaver Trial: The story of Britain's first licensed release into the wild ³¹	Towards the end of the Scottish Beaver Trial, 2014	Eight Likert Scale questions 997 responses	Perceptions of impacts of beavers following the trial period.	Component of wider report.
	Tayside Beaver Study Group Final Report ³²	Parallel to the end of Scottish Beaver Trial, 2015	Fifteen questions posed specifically to landowners 31 responses	To identify attitudes towards beavers, record details of impacts on land use and establish requirements for future advice provision.	Component of wider report. A population of beavers arose in Tayside of unknown origin, and not as part of a licensed reintroduction. The Tayside Beaver Study Group was formed to assess the impacts of those beavers.
	Tayside Beaver socio-economic impact study ³³	Parallel to the end of Scottish Beaver Trial, 2015	Survey of landowners and businesses 142 responses (111 landowners, 31 businesses)	Perceptions of impacts on socioeconomics and, in the case of landowners, what management they would support	Component of wider report.
England	The feasibility and acceptability of reintroducing the	Pre-reintroduction	Literature review & qualitative interviews	Whether organisations have a position on beaver reintroduction and perceptions	Component of wider report.

REGION	REPORT	WHEN	ANALYSIS	KEY FOCUS	ADDITIONAL NOTES
	European beaver to England ³⁴	application, 2009	with stakeholder organisations 20 responses	of both benefits (including how they may be achieved) and concerns (including how they may be allayed)	
	River Otter Beaver Trial Science & Evidence Report ¹⁴	During reintroduction Trial, 2015-2020	Several studies exploring different areas, using mixed-methods including surveys.	Perceptions on various topics, and with various focal groups.	Component parts of wider report. For details, see related peer-reviewed works: ^{35,36,36-38}
Great Britain	Unravelling perceptions of Eurasian beaver reintroduction in Great Britain ²²	Varied stages of reintroduction (due to Britain-wide focus), 2017	Public survey open to all residents, with forty-two quantitative and qualitative questions. 2759 responses	Exploratory Britain-wide study to identify key stakeholder perceptions, views on engagement methods, attitudes to legal protection and management responsibilities, and levels of support for management techniques.	Peer reviewed survey, also reported on for the River Otter Beaver Trial.

VI. METHOD

The approach taken for this survey was adapted from the previous, peer reviewed survey undertaken in 2017 across Great Britain (Table 1, Auster et al, 2020)²². The Wales-specific survey was open for responses for six weeks between 23rd February and April 13th 2023, and could be completed in either Welsh or English.

The questions

The questions asked in this survey were adapted from the 2017 survey to be relevant for the Welsh context. The previous survey took approximately 25 minutes to complete. This was deemed by the researchers to have been a long survey for members of the public to complete voluntarily, so it was simplified to reduce the time required of participants. The aim was for a survey to take 10-15 minutes to complete.

The questions asked are outlined in turn throughout the remainder of this report. As a whole, these were focused on four key areas:

- **Participant familiarity with beavers.** To gain an indicative insight of whether participants were familiar with the species in question, they were asked five multiple-choice questions about beaver ecology. This included asking them to identify a beaver from a choice of four images.
- **Beavers living in Wales.** Participants were asked how much they felt they knew about beavers in Wales, whether they felt able to express an opinion in a manner that may influence decision-makers (and why), and whether they supported beavers living wild in Wales (and their main reason why).
- **Beaver management in Wales** (if they are reintroduced). This section asked general questions to gain an insight into levels of support for beaver management measures. This included whether they would support broad levels of legal protection (strong, limited or none) with a brief explanation of why, and which practical techniques they would support from a list of options, in which they could select multiple answers. This list of options was adapted from The Eurasian Beaver Management Handbook³⁹ with further inclusion of Education (to address misinformation or about how to manage beavers).
- **Demographic information.** To be able to explore how responses varied by participant backgrounds, participants were asked about their gender; age group; occupation; region of Wales in which they are resident; and where they heard about the survey. In line with the study ethics (see [section vii](#)), these questions were asked in broad terms to prevent responses from being personally identifiable, and participants could choose not to answer these questions.

The revised survey took participants an average of 26 minutes to complete.

Participant recruitment

The aim of this research was to capture and understand the perceptions of residents in Wales. Therefore, the recruitment approach sought to enable maximum opportunity for residents in Wales to participate and provide opportunity for a spectrum of viewpoints to be included. Hence, the survey was not seeking to be an “opinion poll”.

A ‘snowball’ sampling approach was undertaken. This is when contacts with particular characteristics are identified and invited to share the invitation onwards within their networks. This approach ensures a spectrum of views can be encompassed within the respondent pool, which was imperative given the politically sensitive nature of the topic. Snowballing also enables the recruitment of participants that may otherwise be more difficult to reach ^{22,40}.

The sample was achieved in two ways:

1. 88 organisational contacts were identified across a range of relevant interests with publicly available contact details, to comply with GDPR requirements. These were individually emailed and invited to share the invitation to participate within their networks. Interests of those invited included: farming unions and groups; angling organisations; river or water NGOs; conservation NGOs; countryside and shooting NGOs; national parks; historical assets; community councils; local authorities; and statutory bodies.
2. To capture members of the general public, a press release was issued with details of the study and an invitation to participate.

Limitations of the recruitment approach

There are limitations of the snowball recruitment approach, which should be recognised when interpreting results.

- As the recruitment approach sought to encompass a spectrum of views rather than be an “opinion poll”, the participants that took part were not recruited in a manner that is directly, statistically representative of the entire Welsh population. Whilst these results will give a useful indicative overview, overall numbers should not necessarily be directly inferred to be statistically representative of the prevalence of an opinion in the entire population. However, capturing opinion prevalence was not the primary aim of this study as it sought to examine how background demographic variables may have an influence upon viewpoints that exist.
- Recently, a similar survey by White *et al* (and not by this report’s authors) looked at perceptions of reintroduction of white stork (*Ciconia ciconia*) into England ²⁶. That survey recruited two samples - one with a similar approach to this survey, and one which was weighted to be statistically representative

of wider population demographics (with the assistance of a marketing company). They tested for differences between respondents who took part in these two approaches and their results demonstrated that respondents in the self-selecting sample were more likely to hold opinions more strongly than those in the representative sample, which could be favourable or unfavourable towards the reintroduction. This suggests that participants who took part in the survey regarding beaver reintroduction in Wales may have been more likely to hold stronger views than non-respondents, who may hold their views less strongly (or perhaps even be disinterested in the topic).

VII. STUDY ETHICS

Prior to collecting data, the study received ethical approval from the University of Exeter's Geography Ethics Committee. This is an expectation of all University of Exeter research that involves human participants, and research cannot commence without approval being granted. To comply:

- The survey was undertaken bilingually to allow maximum opportunity for both Welsh and English speakers living in Wales to participate.
- Participants were required to give informed consent to participate. The study information (including terms of engagement and details of the funding source) were provided on the opening page of the survey. Respondents were required to click a box to indicate they had read and agreed to this information prior to participation.
- Participation was voluntary. Besides from confirming they had read and agreed to the research information, participants could choose not to answer any (or all) questions and could withdraw from the study at any time. During survey completion, this involved simply closing the survey webpage. Following submission and prior to this report's publication, participants could notify the researchers if they wished to withdraw without having to give a reason. Had this happened, any identifiable information would be deleted. (No participants contacted the researcher with a withdrawal request).
- Participation was on an anonymous basis. Background demographic information was asked for (occupation, gender, age group, and region of Wales in which respondents were resident), but participants were not required to give an answer and no individually identifiable information was requested.
- Participants were informed the results would be reported on within this output. They were also informed that results could be included in a follow-up text to be submitted for academic peer review and that non-personal research data would be made available at that time through a suitable data repository, to be available for other researchers.

- Participants were offered the opportunity to opt in to receive a copy of this results report, which is also to be made publicly available. If they opted in, participants were asked to provide a contact email address. This email address was separated from their answers prior to analysis so that their responses could not be personally identified. These contact details were stored on a secure University of Exeter site that was accessible only to the researchers. These details will be permanently deleted once the report has been shared back with those respondents that opted in to receive it.

1. SUMMARY OF RESPONDENTS

4387 responses were received in total (following the removal of 19 blank submissions).

3783 responses (86.25%) were from residents who identified themselves as being resident in Wales.

604 respondents did not identify as resident in Wales. This includes 565 (12.88%) who identified as being resident outside of Wales, and 39 (0.01%) who did not identify where they lived. This group is analysed collectively as ‘Non-Wales Residents’.

Tables 2-7 summarise the participants demographic information, including: the language of submission (Table 2); gender (Table 3); age group (Table 4); region in which respondents live (Table 5); occupation (Table 6); and where respondents heard about the survey (Table 7).

Table 2. Summary of the number of responses received in Welsh and the number received in English.

Language	All respondents	Wales Residents	Non-Wales Residents
Total	4387	3783	604
Welsh	45	44	1
English	4342	3739	603

Table 3. Summary of respondent genders.

Gender	All respondents	Wales Residents	Non-Wales Residents
Total	4387	3783	604
Male	2176	1817	359
Female	2070	1849	221
Other gender	31	29	2
Prefer not to say	91	80	11
Unspecified	19	8	11

Table 4. Summary of respondent age groups.

Age Group	All respondents	Wales Residents	Non-Wales Residents
Total	4387	3783	604
< 18	16	15	1
18 - 24	132	121	11
25 - 34	447	416	31
35 - 44	514	465	49
45 - 54	791	709	82

Age Group	All respondents	Wales Residents	Non-Wales Residents
55 - 64	1088	957	131
65 - 74	1039	844	195
75 and Over	277	198	79
Prefer not to say	70	55	15
Unspecified	13	3	10

Table 5. Summary of regions in which Welsh residents live. Respondents were asked in which region of Wales they were resident, defined by unitary authority areas. (Respondents were asked to select ‘Not resident in Wales’ if they did not live in Wales, and the following table does not include those who selected this answer or did not provide a response).

Region	Wales Residents
Total	3783
Anglesey / Ynys Môn	118
Blaenau Gwent	38
Bridgend / Pen-y-bont ar Ogwr	80
Caerphilly / Caerffili	87
Cardiff / Caerdydd	312
Carmarthenshire / Sir Gaerfyrddin	253
Ceredigion	218
Conwy	237
Denbighshire / Sir Ddinbych	166
Flintshire / Sir y Fflint	152
Gwynedd	342
Merthyr Tydfil / Merthyr Tudful	21
Monmouthshire / Sir Fynwy	174
Neath Port Talbot / Castell-nedd Port Talbot	74
Newport / Casnewydd	69
Pembrokeshire / Sir Benfro	215
Powys	611
Rhondda Cynon Taff	104
Swansea / Abertawe	207
Torfaen / Tor-faen	53
Vale of Glamorgan / Bro Morgannwg	122
Wrexham / Wrecsam	130

Table 6. Summary of participant occupations^f.

Occupation	All respondents	Wales Residents	Non-Wales Residents
Total	4386	3783	604
Architecture, Energy & Engineering	113	90	23
Arts, Sport & Media	139	124	15
Building & Maintenance	73	57	16
Business & Finance	142	128	14
Community & Social Service	103	97	6
Computer & Mathematical	108	99	9
Education	465	419	46
Environment, Nature & Wildlife	584	519	65
Farming & Agriculture	179	171	8
Fisheries & Aquaculture	25	19	6
Forestry & Woodland Management	46	44	2
Healthcare	316	283	33
Hospitality	55	52	3
Office & Administrative Support	167	156	11
Physical & Social Science	23	17	6
Production / Manufacturing	60	43	17
Sales	44	39	5
Student	101	92	9
Tourism	48	46	2
Transport	44	38	6
Other (Retired)	988	775	213
Other (Not Currently Working)	84	78	6
Other (All Other)	421	368	53

^f There was an option available to identify with another occupation that was not listed. Within this category, a high number of responses were received. Upon inspection of the responses given when participants were asked to specify, a large number identified as retired or as unemployed or not currently working. The researchers recognise that this was an oversight and these are two categories that should have been originally included in the occupational list. Respondents who identified their occupation as 'Other' have therefore been divided into three categories:

- 'Other (Retired)' includes all respondents who selected 'Other' and identified themselves to be retired or semi-retired.
- 'Other (Not currently working)' includes all respondents who identified as unemployed or not currently working, including for reasons of disability or care duties.
- 'Other (All Other)' includes all remaining participants who selected 'Other'. Occupations within this category include, for example: Canoe Guide; Cartographer; Guide Dog Mobility Specialist; Life Coach; Nutritional Therapist; Priest; Vet; and others.

Table 7. Summary of where respondents indicated they had heard about the survey.

Source	All respondents	Wales Residents	Non-Wales Residents
Total	4386	3783	604
Press (ie. Newspaper, News Website etc.)	799	772	27
Television / Radio	26	24	2
Social Media Advertisement	198	194	4
Social Media Post	1456	1354	102
Wildlife or Nature Organisation	1083	841	242
Farming Organisation	54	52	2
Fishing Organisation	199	55	144
Forestry Organisation	7	6	1
Water Organisation	5	1	4
Business Organisation	10	9	1
Tourism Organisation	2	1	1
Local Council	20	19	1
Friend or Family	281	261	20
The Researcher Directly	26	22	4
Other	181	149	32
Unspecified	40	23	17

2. RESULTS

The focus of this survey was to provide residents in Wales with an opportunity to share their views on beavers and their reintroduction. As such, the priority for this results section is to present findings from respondents in Wales, defined in the following pages as “Wales residents”. The core analyses focus on this group.

Results from non-Wales residents have not been analysed in as much detail, yet summaries of results from individuals who were not resident in Wales (or did not identify as resident / not resident in Wales) are summarised. This group is referred to throughout as “non-Wales residents”.

2.1. SECTION 1: KNOWLEDGE OF BEAVERS

In the first part of the survey, participants were asked five multiple-choice questions about beavers to gain an indication of respondent familiarity with the species.

Each question and a breakdown of responses is given in Tables 8-12. Each of these tables contains the results for Wales residents, non-Wales residents, and the 2017 survey of Britain ²².

For each of these questions, the number of responses received that were correct or incorrect from Wales residents were compared to the results of the 2017 survey of Britain using chi-square tests of independence (incorrect answers were grouped under ‘incorrect’).

Question 1: Which of the following animals is a beaver?

In this first question, participants were presented with the following four images and asked to identify which one is a beaver.

98.79% of Wales residents identified the correct answer (Table 8).

Table 8. Summary of responses to Question 1.

Correct or Incorrect	Multiple Choice Answer	% of Wales residents			% of non-Wales residents	2017 Survey of Britain
		All N=3634	Submitted in English N=3590	Submitted in Welsh N=44		
Correct	Eurasian Beaver	98.79%	98.77%	100.00%	98.59%	97.85%
Incorrect	Otter	0.80%	0.81%	0.00%	0.88%	<i>Different 'incorrect' images were used. Total incorrect was 2.15%</i>
	Water Vole	0.30%	0.31%	0.00%	0.53%	
	Muntjac Deer	0.11%	0.11%	0.00%	0.00%	

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of correct answers given by residents in Wales was 0.92% higher than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was statistically significant^g.

Question 2: Where do beavers live?

Participants could choose from one of five options, and 74.42% of Wales residents identified the correct answer of a Lodge (Table 9).

Table 9. Summary of responses to Question 2.

Correct or Incorrect	Multiple Choice Answer	% of Wales residents			% of non-Wales residents	2017 Survey of Britain
		All N=3777	Submitted in English N=3734	Submitted in Welsh N=43		
Correct	Lodge	74.42%	75.15%	11.63%	79.10%	72.99%
Incorrect	Dam	20.94%	20.43%	65.12%	17.41%	22.62%
	Holt	3.60%	3.43%	18.60%	1.49%	3.22%
	Sett	1.01%	0.96%	4.65%	1.66%	1.13%
	Cave	0.03%	0.03%	0.00%	0.33%	0.04%

^g $\chi^2=7.9983$, $df=1$, $p<0.05$

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of correct answers given by residents in Wales was 1.43% higher than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was **not** statistically significant^h.

Question 3: What are baby beavers called?

Participants could choose from one of five options, and 81.85% of Wales residents identified the correct answer of a Kit (Table 10).

Table 10. Summary of responses to Question 3.

Correct or Incorrect	Multiple Choice Answer	% of Wales residents			% of non-Wales residents	2017 Survey of Britain
		All N=3768	Submitted in English N=3725	Submitted in Welsh N=43		
Correct	Kit	81.85%	82.26%	46.51%	86.17%	80.91%
Incorrect	Pup	10.11%	10.12%	9.30%	7.67%	11.11%
	Cub	7.38%	6.98%	41.86%	5.17%	7.25%
	Kid	0.35%	0.32%	2.33%	0.33%	0.48%
	Calf	0.32%	0.32%	0.00%	0.67%	0.26%

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of correct answers given by residents in Wales was 0.94% higher than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was **not** statistically significantⁱ.

^h $\chi^2=1.597$, $df=1$, $p=0.21$

ⁱ $\chi^2=0.85664$, $df=1$, $p=0.35$

Question 4: What do beavers eat?

Participants could choose from one of five options, and 82.85% of Wales residents identified the correct answer of Vegetation (Table 11).

Table 11. Summary of responses to Question 4.

Correct or Incorrect	Multiple Choice Answer	% of Wales residents			% of non-Wales residents	2017 Survey of Britain
		All N=3773	Submitted in English N=3729	Submitted in Welsh N=44		
Correct	Vegetation	82.85%	82.81%	86.36%	85.36%	82.13%
Incorrect	Fish	15.93%	16.01%	9.09%	13.64%	16.37%
	Insects	0.58%	0.54%	4.55%	0.00%	0.73%
	Small Mammals	0.58%	0.59%	0.00%	0.67%	0.58%
	Bird eggs	0.05%	0.05%	0.00%	0.33%	0.18%

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of correct answers given by residents in Wales was 0.72% higher than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was **not** statistically significant^j.

Question 5: What type of mammal is a beaver?

Participants could choose from one of five options, and 81.14% of Wales residents identified the correct answer of a Rodent (Table 12).

Table 12. Summary of responses to Question 5.

Correct or Incorrect	Multiple Choice Answer	% of Wales residents			% of non-Wales residents	2017 Survey of Britain
		All N=3760	Submitted in English N=3719	Submitted in Welsh N=41		
Correct	Rodent	81.14%	81.20%	75.61%	83.08%	78.90%
Incorrect	Mustelid	11.57%	11.59%	9.76%	10.05%	14.52%
	Marsupial	5.08%	5.00%	12.20%	5.36%	4.28%
	Carnivora	2.15%	2.15%	2.44%	1.17%	2.27%
	Feline	0.05%	0.05%	0.00%	0.34%	0.04%

^j $\chi^2=0.48667$, $df=1$, $p=0.49$

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of correct answers given by residents in Wales was 2.24% higher than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was statistically significant^k.

Overall scores

The total number of correct answers was calculated for responses who had answered all five of the multiple-choice beaver knowledge questions. The total number is given in Table 13.

Table 13. Overview of participant total number of correct answers in the multiple-choice beaver knowledge questions (Questions 1-5).

Indicative Knowledge Category	Number of correct answers given	% of Wales residents <i>N=3601</i>	% of non-Wales residents <i>N=557</i>	2017 Survey of Britain <i>N=2272</i>
Strong Knowledge	4 or 5	78.89%	82.76%	75.57%
Moderate Knowledge	2 or 3	18.99%	15.26%	22.14%
Little or No Knowledge	0 or 1	2.11%	1.97%	2.29%

Comparison between Wales residents and 2017 survey of Britain respondents.

The percentage figure for the number of respondents scoring in the indicative 'Strong Knowledge' category was 3.32% higher than that of the 2017 survey of Britain.

The percentage figure for the number of respondents scoring in the indicative 'Moderate Knowledge' category was 3.15% lower than that of the 2017 survey of Britain.

The percentage figure for the number of respondents scoring in the indicative 'Little or No Knowledge' category was 0.18% lower than that of the 2017 survey of Britain.

The relationship between the number of correct / incorrect responses between the two survey datasets was statistically significant^l.

^k $\chi^2=4.7439$, $df=1$, $p<0.05$

^l $\chi^2=8.9992$, $df=2$, $p<0.05$

2.2. SECTION 2: BEAVERS IN WALES

In this section, results are presented from the second section of the survey which focused on respondent views of beavers living wild in Wales. This includes how much they feel they know about beavers living wild in Wales, whether they support beavers living wild in Wales, and whether they feel able to express their views in a way which could influence decision-makers about beavers living wild in Wales.

Question 6: How much do you feel you know about beavers in Wales?

In response to this question, respondents could select one of five options. The results are visualised in Figure 1.

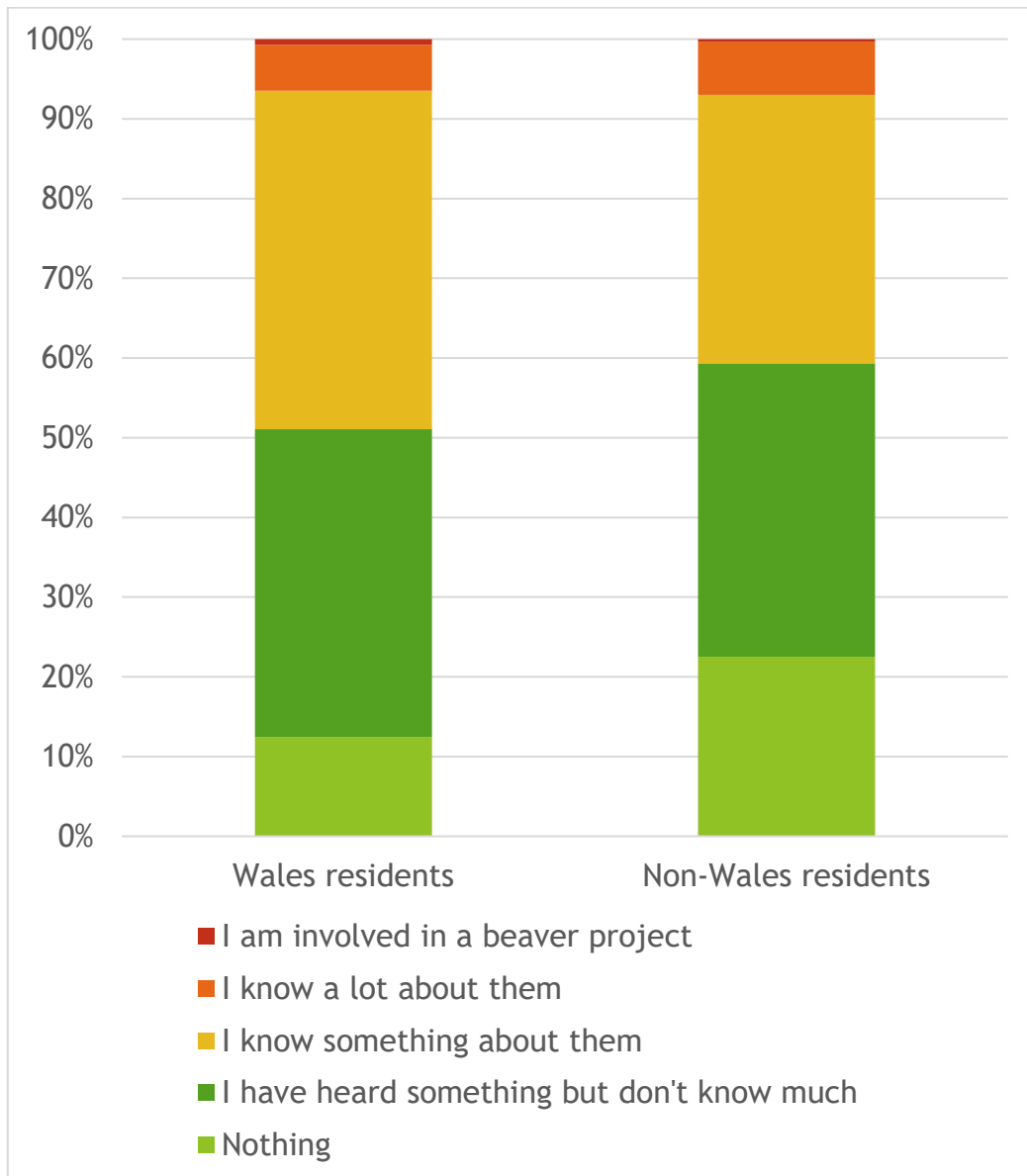
Of Wales residents who answered the question (n=3765), the most selected option was 'I know something about them' (42.47%) followed by 'I have heard something but don't know much' (38.59%).

12.46% of Wales residents indicated that they felt they knew 'Nothing', and 5.76% selected 'I know a lot about them'. The remaining 0.72% selected 'I am involved in a beaver project'.

For non-Wales residents who answered (n=600), the two most frequently selected options were the same but they were ordered the other way around ('I have heard something but don't know much' = 36.83%; 'I know something about them' = 33.67%).

22.50% of non-Wales residents indicated that they felt they knew 'Nothing', and 6.67% selected 'I know a lot about them'. The remaining 0.33% selected 'I am involved in a beaver project'.

Figure 1. Summary of responses to Question 6: How much do you feel you know about beavers in Wales?



Question 7: Do you feel that you can express your views on beavers in Wales in a manner that will influence the decision makers?

3721 residents in Wales responded to this question, of whom the majority felt they **could** express their opinion in such a way (56.71% answered 'Yes' and 43.29% answered 'No').

When the same question was asked in the 2017 survey of Britain, the opposite trend was found. Of the 2685 people who responded to that survey, 60.22% indicated they **did not** feel able express their opinions in such a way, whilst 39.78% felt that they could.

The relationship between the number of respondents who answered 'Yes' or 'No' was tested using a chi square test of independence, and this relationship was found to be statistically significant^m.

Reasons given for respondent answers

Respondents were offered the opportunity to provide a reason for their answer. As the response field was for open text, some participants provided more than one reason for their view. In these instances, each reason given was counted individually.

Of those who answered 'Yes', 1821 respondents in total provided an explanation for why they answered 'Yes'. (30 of these were discounted from the analysis as they were unclear). A summary of reasons given by this group is given in Table 14.

Of those who answered 'No', 1048 respondents in total provided an explanation for why they answered 'Yes'. (20 of these were discounted from the analysis as they were unclear). A summary of reasons given by this group is given in Table 15.

In both sets of responses, respondent answers often gave reasons as to why participants supported or did not support beavers living wild in Wales. Reasoning for respondents stances on beavers living wild in Wales were asked for under Question 7 (the responses to which are summarised in Tables 16-18). Here however, this was not the focus of the question so responses were only included in Tables 14 and 15 when there was an explicit link between a reason for their view on reintroduction and the specific question being asked. For example, a response would have been included if a respondent used their reason for support / opposition as an example to demonstrate why they feel they may have knowledge of the topic to contribute, but it would not have been included if it were presented as a standalone pointⁿ.

^m $\chi^2=178.12$, $df=1$, $p<0.001$

ⁿ Among those who answered 'Yes', 406 respondents provided a reason for supporting beavers living wild in Wales and 50 provided a reason for not supporting this, without an explicit link. Among those who answered 'No', 15 respondents provided a reason for supporting beavers living wild in Wales and 4 provided a reason for not supporting this, without an explicit link.

Table 14. Summary of reasons given by participants who *did* feel able to express opinions in a manner that may influence decision-makers.

Explanation	Further Detail	Example Quote(s)	Count
Feel they have relevant experience to contribute	<ul style="list-style-type: none"> -Qualification in a relevant field (e.g. undergraduate or Masters degree, PhD) -Relevant work experience (e.g. ecologist, forester, fisheries owner, farmer, water bailiff, countryside manager, education, job related to stakeholder engagement or campaigning) -Other relevant experience or roles outside of work (e.g. fisherman, angling club Chairman, wildlife volunteer) 	<p><i>"I am an ecologist with 20 years of experience working with protected species."</i></p> <p><i>"I have been on rivers fishing since I was 4 years old. I am 61 years old and have seen the rivers decline Year on Year due to humans."</i></p> <p><i>"I am an informed member of the public with a PhD in Zoology."</i></p> <p><i>"I am a farmer, with knowledge of the countryside."</i></p>	374
Feel informed or have knowledge of a relevant topic to contribute	<ul style="list-style-type: none"> -Have followed beaver reintroductions taking place in other places. -Have seen positive / negative impacts of beavers. -Understand environmental issues. -Understand rural life. -Have seen information (e.g. on Television, magazines, books) 	<p><i>"I have read a number of papers and books on beaver ecology and the impact of re-introductions elsewhere."</i></p> <p><i>"I feel able to support my views in an informed manner."</i></p>	341
Identify as an individual who would be affected by beavers	<ul style="list-style-type: none"> -Live in an area that would be affected. -Live in an area that frequently floods. -Live in an area of suitable habitat for beavers. -Live in Wales. -Landowner / Riparian landowner. -Farmer or member of farming community. 	<p><i>"We live a rural area, in which beavers would have an affect."</i></p> <p><i>"I am a farmer with land by the river and a fisherman. We will have to deal with the consequences of the introduction of the beaver and should be allowed a part in the decision making."</i></p>	143

<p>Have interest in the topic</p>	<ul style="list-style-type: none"> -Have strong feelings. -Have serious concerns. -Am enthusiastic / passionate. 	<p><i>"I live here. I am a stakeholder."</i></p> <p><i>"I have a keen and active interest in the history and ecology of Wales and I also have an interest in wildlife and how animals interact with our environment."</i></p> <p><i>"As a riparian landowner I have serious concerns."</i></p> <p><i>"...as I'm passionate, it means I'm willing to engage."</i></p>	<p>143</p>
<p>Every opinion counts / is valid / should be heard</p>	<ul style="list-style-type: none"> -Wales is a democracy. -Decision-makers should consider all views. -Everyone is entitled to have a say. -Offer the opinion of a Welsh voter. -Have a right to give an opinion. -Freedom of speech. -Believe in speaking out. 	<p><i>"Wales is a free democracy and everybody's voice should be heard."</i></p> <p><i>"I would hope that the decision makers take account of the views of the Welsh people."</i></p> <p><i>"The public voice is important as it affects everyone."</i></p>	<p>105</p>
<p>Confident in ability to communicate</p>	<ul style="list-style-type: none"> -An articulate person. -Have presentation / research / writing / communication skills. -Confident speaker. -Accustomed to lobbying politicians. -Capable of seeing both sides. 	<p><i>"I believe I am usually eloquent and able to use quality language."</i></p> <p><i>"I am articulate."</i></p> <p><i>"I am happy to speak out on issues that concern me."</i></p>	<p>84</p>
<p>This survey provides an opportunity</p>	<ul style="list-style-type: none"> -Questions are being asked for this reason. -If it gets a large response. -Opportunity for non-experts. 	<p><i>"Due to the fact that a survey is being undertaken and I am participating, hopefully it will have an impact on decision makers."</i></p>	<p>74</p>
<p>There are opportunities to express a view</p>	<ul style="list-style-type: none"> -Via petitions or social media. -Channels via Welsh Government / Local Authorities / Natural Resources Wales. 	<p><i>"I can contact any necessary authority."</i></p>	<p>46</p>

	-Consultation events. -Writing to representatives.	<i>“Significant public consultation takes place.”</i> <i>“Through online questionnaires, petitions and membership of environmental organisations.”</i>	
Member of a relevant organisation or group	-Examples given include: A Wildlife Trust; Nature Friendly Farming Network; North Wales Rivers Trust; Woodland Strategy Advisory Panel; local volunteer group.	<i>“I have a farm with two rivers and belong to the Nature Friendly Farming Network.”</i> <i>“I am a member of North Wales Wildlife Trust.”</i>	35
As part of a majority voice	-If there are enough voices	<i>“The power of shared voice”</i> <i>“Indeed, the more support, the more decision-makers will need to take notice”</i>	29
Have access to decision-makers	-Examples given include: Welsh Government; Natural Resources Wales; Wildlife Trusts.	<i>“[I] have strong links with Welsh Government and Natural Resources Wales.”</i>	16
Hope		<i>“I hope so.”</i>	16
Have an impartial or objective view	-Evidence-led -Able to provide a balanced argument. -Have no agenda.	<i>“My views are objective and I have a wideranging knowledge of uk wildlife and ecology.”</i>	16
Work for a decision-making organisation	Examples given include: Welsh Government; organisation campaigning for beavers; a Wildlife Trust.	<i>“I work for a decision-maker!”</i>	10
No reason	-Why not	<i>“No specific reason”</i>	4
With conditions	-That enough information is widely shared. -If decision-makers want to listen.	<i>“That is if the decision makers want to listen to my views.”</i>	3
Reintroduction is in an early stage		<i>“Early stage of reintroduction program”</i>	2

Table 15. Summary of reasons given by participants who *did not* feel able to express opinions in a manner that may influence decision-makers.

Explanation	Further Detail	Example Quote(s)	Count
Feel they do not have sufficient knowledge to be able to contribute	<ul style="list-style-type: none"> -Don't know enough about beavers / ecology / potential impacts. -Not well enough informed. -Not qualified or involved. -Not familiar with / got access to the evidence to support their view. 	<p><i>"I don't feel I have sufficient knowledge."</i></p> <p><i>"I have a general opinion but currently lack the scientific knowledge to back it up effectively."</i></p>	468
Disenfranchised, distrustful, or disempowered in decision-making processes or bodies	<ul style="list-style-type: none"> -Decision-makers / government don't listen. -Public don't have much voice / won't listen to ordinary people. -Nobody interested in the voice of farmers. -Decision-makers do not understand the countryside. -Eroded trust in elected officials -Wildlife / environment / nature not see as a priority. -Politicians are risk averse. -Not enough conservation staff resource. 	<p><i>"Don't tend to listen to the general population anyway...just the extremists or for votes."</i></p> <p><i>"I have no faith in agencies of the government."</i></p> <p><i>"Governments make up their own minds and do what they want, consultation is usually a sham."</i></p> <p><i>"I don't think I'd be taken seriously by decision makers due to only being 19."</i></p>	180
Particular groups have more influence in decision-making	<ul style="list-style-type: none"> -Do not have the political clout that lobby groups carry -Interest groups have a loud voice. -Vested interests are too powerful. -Examples given include: rewilding advocates; landowners; farmers; animal rights groups. 	<p><i>"I don't expect public opinion will have the influence that lobbying by organisations [...] will."</i></p> <p><i>"Other, more powerful groups would have more sway."</i></p> <p><i>"I feel that the nay sayers will have a louder voice and be listened to."</i></p>	58
Do not know how to do so	<ul style="list-style-type: none"> -Don't know who decision-makers are. -Don't know where to go. -Don't know how decisions will be taken. 	<p><i>"I'm articulate but I do not know who the decision-makers are."</i></p>	54

	-Don't know what will influence decision-makers.	<i>"Don't know what factors might influence the decision-makers, or who they are."</i>	
Do not feel personally able to articulate views	-Not confident enough. -Feel presentation / writing skills are insufficient. -Feel too emotive about subject. -Personal circumstances inhibit ability to do so.	<i>"People like to interrupt me." "Not skilled at getting my views across." "I'm not a confident person." "I am not sure that I have the skills."</i>	50
Lack of opportunities to express viewpoints	-No one has asked. -Have not seen any consultation / authorities not running surveys like this. -No fora to engage. -Not been involved in the project.	<i>"No forums to properly engage." "unaware of any platform in which to do so." "Not clear how or where you would do this. I haven't seen any consultations via Natural Resources Wales."</i>	46
Hard for an individual voice to be heard.	-Have little influence. -Collectively yes, but not individually. -Not an organisation. -Only stakeholders get a say.	<i>"I am one person out of millions so unlikely to be individually heard." "I'm just a random middle aged guy." "A group approach would be more effective."</i>	41
Decision has already been taken.	-Survey is a box-ticking exercise. -Already reintroduced without consent in some rivers / already underway / being promoted. -There are illegal releases. -Too much momentum to stop the project. -Beavers will be imposed in Wales.	<i>"Decision-makers have already made the decisions before asking the public['s] opinion." "Generally speaking, people have made their minds up before they send out a survey." "Because there is already a roll-out underway."</i>	40

Do not view self as a stakeholder	<ul style="list-style-type: none"> -Not a landowner. -Do not live in a rural area / live in an urban area. -Not an environment expert. -Not an affected individual. 	<p><i>"I'm not a landowner so it won't affect me directly."</i></p> <p><i>"I am not one of the people who will most need to deal with the effects of reintroduction."</i></p>	28
Not in a position of influence	<ul style="list-style-type: none"> -Not a politician. -Not linked to decision-makers. -Not a member of a relevant organisation. -Not a full-time resident in Wales / just moved to Wales. 	<p><i>"I don't hold a position of influence."</i></p> <p><i>"I don't have any formal decision making powers."</i></p>	19
Unsure	<ul style="list-style-type: none"> -Don't know 	<p><i>"I'm not sure."</i></p>	9
Don't want to express opinions	<ul style="list-style-type: none"> -Not taken personal action. -Work for Welsh Government so need to be impartial. -Should be a matter of informed, scientific decision-making. 	<p><i>"I don't express my views."</i></p> <p><i>"Professionally I may need to make objective decisions rather than decisions based on personal opinion."</i></p>	6
Have nothing new to add	<ul style="list-style-type: none"> -They would already know what I could explain. 	<p><i>"would only be repeating the numerous studies reporting their beneficial effects."</i></p>	4
Don't hold strong views		<p><i>"I don't feel I'd be passionate about it."</i></p>	2
Can't individual landowners just go ahead and do it themselves?		<p><i>"Can't individual landowners just go ahead and do it themselves?"</i></p>	1
The experts disagree about pros and cons		<p><i>"The experts themselves do not agree about pros and cons."</i></p>	1
Fear it is now viewed as if possible opponents are anti-nature		<p><i>"The movement to reintroduce lost species seems to be gaining momentum all over Europe. I fear it is now viewed as if possible opponents are anti-nature, or uncaring about ecological decline"</i></p>	1

Question 8: Do you support Eurasian beaver living in the wild in Wales?

Respondents were offered the opportunity to answer 'Yes', 'No', or 'Undecided' in response to this question, followed by the opportunity to describe the main reason for their answer.

In this section, an overall summary of responses is given. As a research aim is to examine how the respondent backgrounds influence viewpoints, this is then broken down by background participant variables (i.e. language, gender, age group, occupation, where respondents heard about the survey, and indicative knowledge scores as identified in [section 1](#)).

Multinomial logistic regression was used to examine whether a participant background variable would be statistically more / less likely to influence support / opposition to beavers living wild in Wales. This is because the nominal dependent variable of level of support for reintroduction has more than two categories (Yes / No / Undecided), as do the background participant variables, with exception of the age category which is an ordinal variable. The reference category was 'No', i.e. not supportive of beavers living wild in Wales. Only statistically significant results ($p < 0.05$) are presented^o.

The background variable of language of submission was analysed using a Fishers' Exact test as only a small number of responses were submitted in Welsh and there were 5 or fewer counts in two of the response categories.

Summary of overall levels of support or opposition among respondents

3771 Wales residents answered this question, of which 88.70% answered 'Yes', 6.71% answered 'No', and 4.59% were 'Undecided'.

In the 2017 survey of Britain, the context was different in that it was a survey throughout Great Britain at a time when there were also fewer beavers, so the question asked was different: 'Do you support the process of reintroducing the Eurasian beaver to Great Britain?'. As this question is not identical, results here are **not** directly comparable. For an *indicative* comparison, 86.25% of the 2741 respondents who provided a response that question answered 'Yes', 7.44% answered 'No', and 6.31% were undecided.

^o For models which had a good fit and at least 10 respondents in a category.

Relationship between the level of support and language of submission

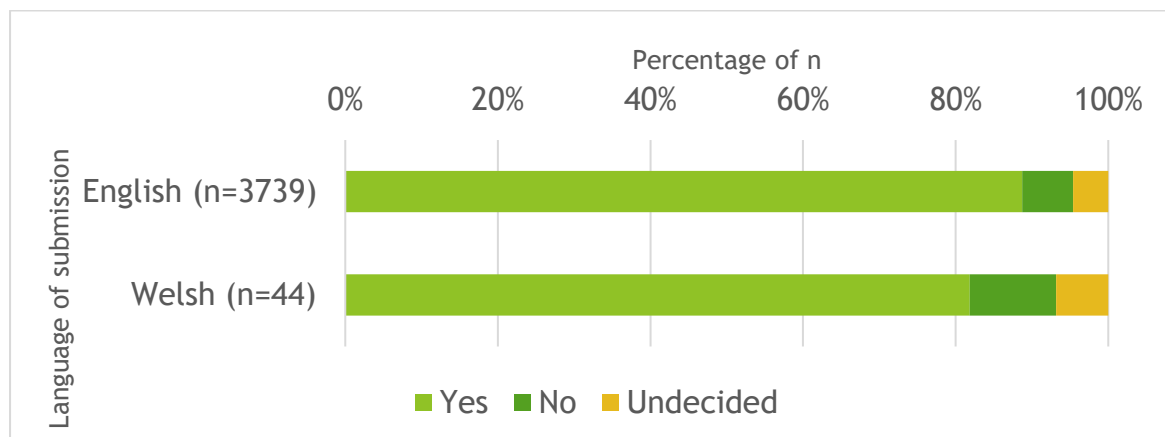
3739 respondents from Wales who answered the question submitted their response in English. Of these, 88.70% supported beavers living wild in Wales, 6.71% did not, and 4.59% were undecided.

44 respondents from Wales who answered the question submitted their response in Welsh. Of these, 81.82% supported beavers living wild in Wales, 11.36% did not, and 6.82% were undecided.

There was **not** a statistically significant relationship between the language of submission and levels of support for beavers living wild in Wales^P.

The relationship between language of submission and levels of support for beavers living wild in Wales is visualised in Figure 2.

Figure 2. Relationship between whether participants support beavers living wild in Wales and the language of survey submission. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



Relationship between the level of support and respondent gender

3683 respondents from Wales answered both the question and identified their gender. Of those, 1810 were male (49.14%), 1845 were female (50.10%), and 28 identified with another gender (0.76%).

- Female respondents were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (2.672). They were also statistically more likely than the other respondents to be undecided than oppose (3.443)^q.
 - In this group, 91.22% answered ‘Yes’, 3.63% answered ‘No’, and 5.15% answered ‘Undecided’.

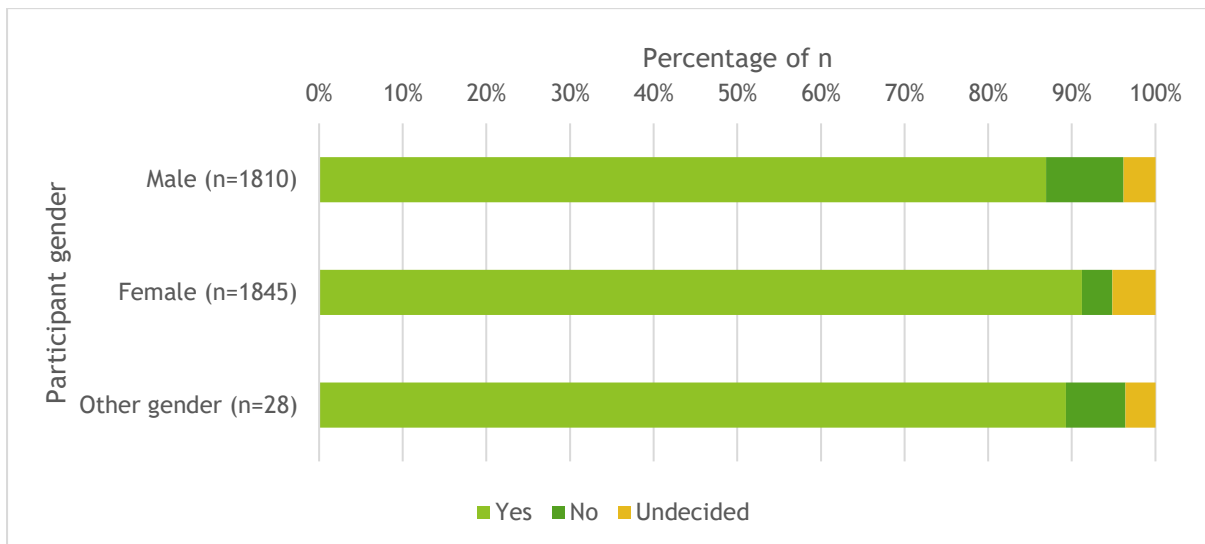
^PAs only a small number of responses were submitted in Welsh and there were 5 or fewer counts in two of the response categories, the relationship was tested using a Fisher Exact test, $p=0.2468$.

^q $X^2_{(2,3683)}=52.283$, Nagelkerke $R^2=0.025$, $p<0.001$

- Male respondents were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.378). They were also statistically less likely than the other respondents to be undecided than oppose (0.295)^r.
 - In this group, 86.91% answered ‘Yes’, 7.14% answered ‘No’, and 3.57% answered ‘Undecided’.

The relationship between gender and levels of support for beavers living wild in Wales is visualised in the Figure 3.

Figure 3. Relationship between whether participants support beavers living wild in Wales and the participants’ gender. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



^r $\chi^2_{(2,3683)}=51.567$, Nagelkerke $R^2=0.025$, $p<0.001$

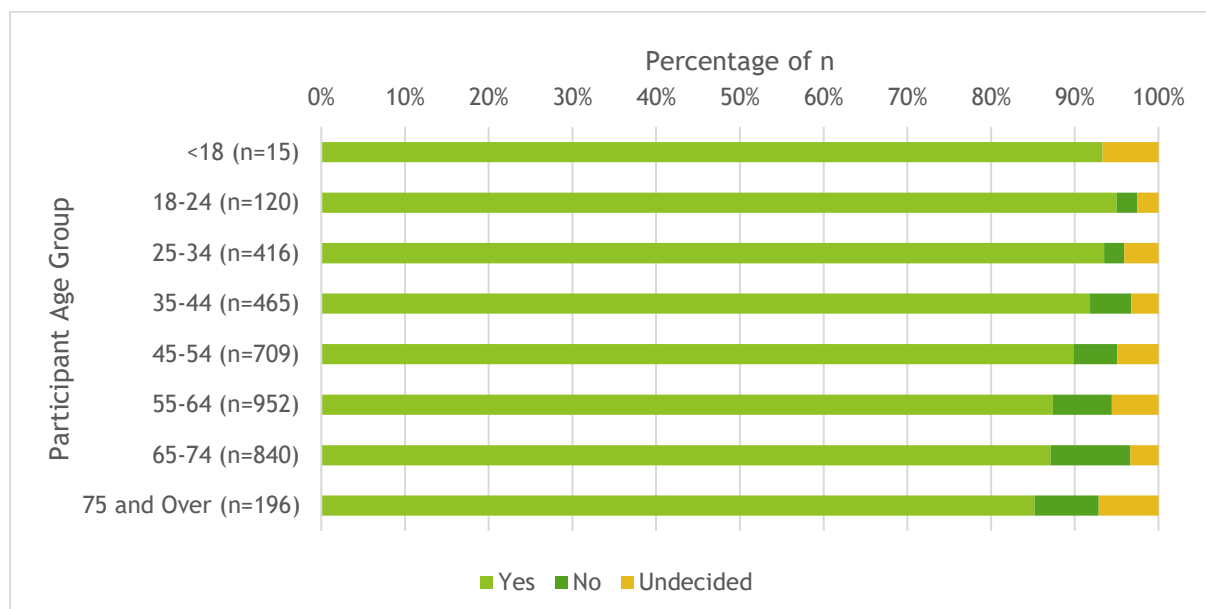
Relationship between the level of support and respondent age group

3713 respondents from Wales answered both the question and identified their age group.

- Respondents aged between 25 and 34 were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (2.994). They were also statistically more likely than the other respondents to be undecided than oppose (2.567)^s.
 - In this group, 93.51% answered ‘Yes’, 2.40% answered ‘No’, and 4.09% answered ‘Undecided’.
- Respondents aged between 65 and 74 were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.550). They were also statistically less likely than the other respondents to be undecided than oppose (0.393)^t.
 - In this group, 87.14% answered ‘Yes’, 9.52% answered ‘No’, and 3.33% answered ‘Undecided’.

The relationship between age group and support for beavers living wild in Wales is visualised in Figure 4.

Figure 4. Relationship between whether participants support beavers living wild in Wales and the participants’ age group. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



^s $X^2_{(2,3713)}=15.663$, Nagelkerke $R^2=0.007$, $p<0.001$

^t $X^2_{(2,3713)}=19.761$, Nagelkerke $R^2=0.009$, $p<0.001$

Relationship between the level of support and region of Wales in which participants were resident

3771 respondents from Wales answered both the question and identified the region of Wales in which they lived.

- Respondents resident in Cardiff / Caerdydd were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (3.450)^u.
 - In this group, 96.14% answered 'Yes', 3.45% answered 'No', and 5.75% answered 'Undecided'.
- Respondents resident in Denbighshire / Sir Ddinbych were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.452). They were also statistically less likely than the other respondents to be undecided than oppose (0.313)^v.
 - In this group, 83.64% answered 'Yes', 13.33% answered 'No', and 3.03% answered 'Undecided'.
- Respondents resident in Powys were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.575)^w.
 - In this group, 83.25% answered 'Yes', 9.85% answered 'No', and 6.90% answered 'Undecided'.
- Respondents resident in Wrexham / Wrecsam were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.427)^x.
 - In this group, 81.54% answered 'Yes', 13.85% answered 'No', and 4.62% answered 'Undecided'.

The relationship between region and support for beavers living wild in Wales is visualised in Figure 5.

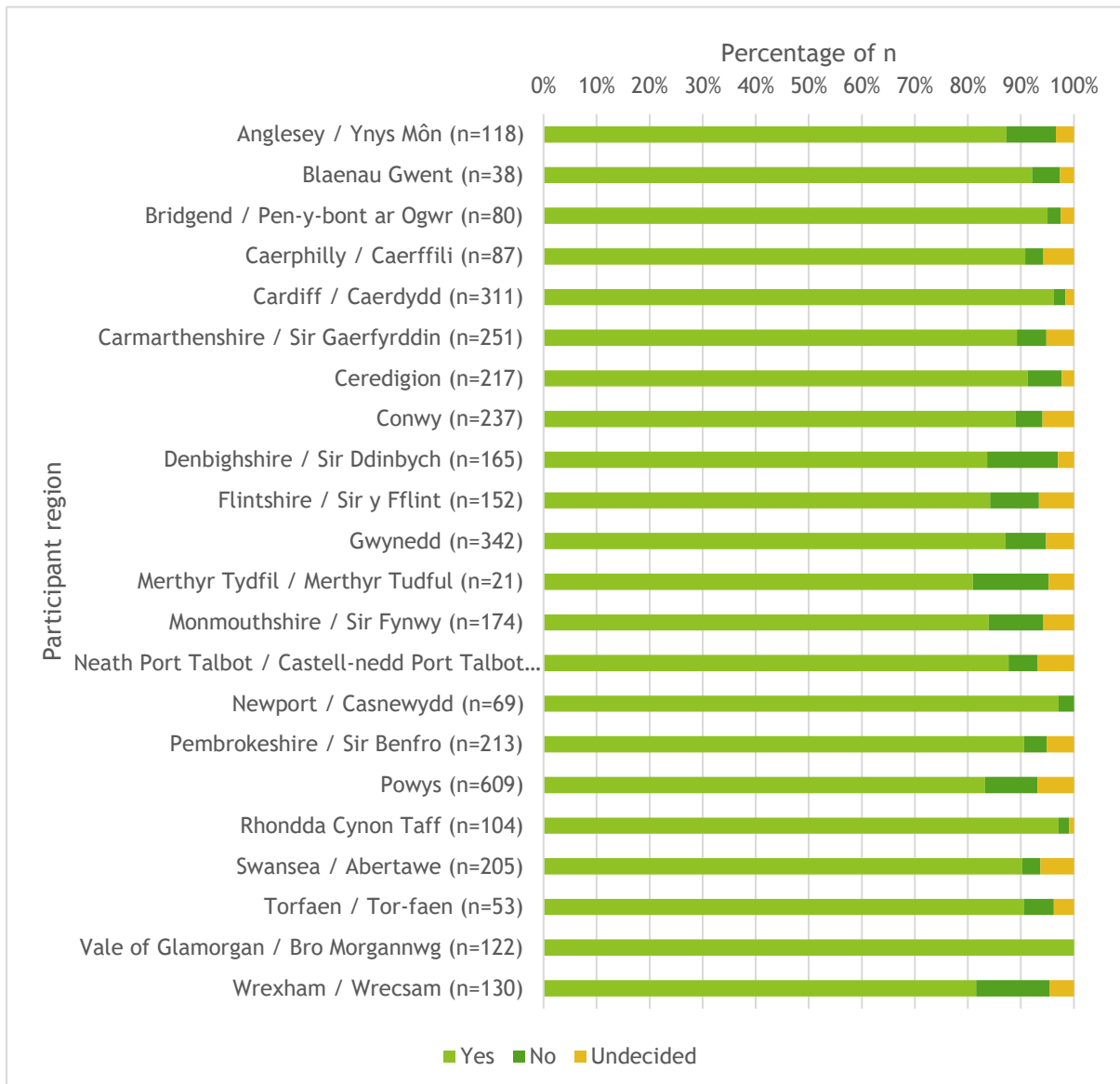
^u $X^2_{(2,3771)}=23.895$, Nagelkerke $R^2=0.011$, $p<0.001$

^v $X^2_{(2,3771)}=10.401$, Nagelkerke $R^2=0.005$, $p<0.05$

^w $X^2_{(2,3771)}=19.612$, Nagelkerke $R^2=0.009$, $p<0.001$

^x $X^2_{(2,3771)}=8.685$, Nagelkerke $R^2=0.004$, $p<0.05$

Figure 5. Relationship between whether participants support beavers living wild in Wales and the participants' region of residence. (Key denotes responses to Question 7: 'Yes' = supports beavers living wild in Wales; 'No' = does not support beavers living wild in Wales)



Relationship between the level of support and whether respondents identified as living in Wales or as not resident in Wales

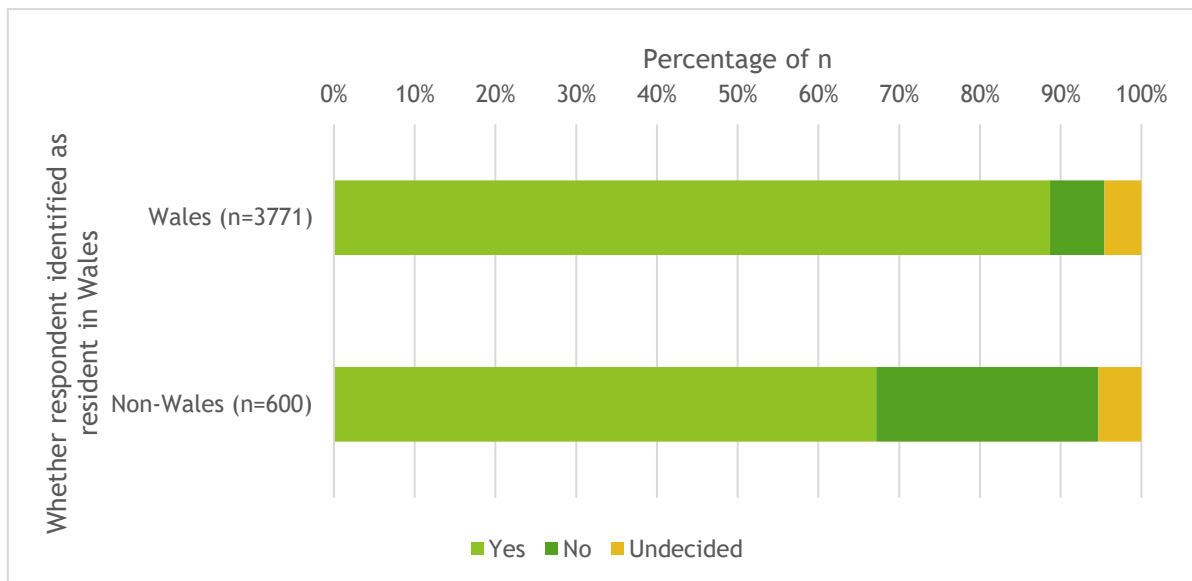
Throughout this section, the analyses have focused on respondents who identified themselves to be living in a region of Wales. For an additional comparison here, participants who did not identify themselves to be resident in a region of Wales were compared to those who did. 4371 respondents answered the question and were included in this analysis.

- Respondents who did not identify as residents in Wales were statistically less likely than those who did to support beavers living wild in Wales than oppose (0.185). They were also statistically less likely than Wales residents to be undecided than oppose (0.284)^y.
 - In this group, 67.17% answered ‘Yes’, 27.50% answered ‘No’, and 5.33% were ‘Undecided’.

Reminder: Survey recruitment was targeted towards Wales. The Non-Wales residents’ group includes individuals who selected ‘Not resident in Wales’ OR did not specify an answer. We cannot identify where respondents in this group live and these results specifically compare between responses from within this participant pool; the result should not be misrepresented as a comparison of the views of Welsh residents compared to the views of residents elsewhere in Britain or around the globe.

The relationship between support for beavers living wild in Wales and their occupational background is visualised in Figure 6.

Figure 6. Relationship between whether participants support beavers living wild in Wales and whether participants identified themselves as resident in Wales. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



^y $\chi^2_{(2,4371)}=199.737$, Nagelkerke $R^2=0.071$, $p<0.001$

Relationship between the level of support and respondent occupation

3742 respondents from Wales answered both the question and identified their occupational background.

- Respondents whose occupation was in ‘Community & Social Service’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (7.314)^z.
 - In this group, 96.91% answered ‘Yes’, 1.03% answered ‘No’, and 2.06% answered ‘Undecided’.
- Respondents whose occupation was in ‘Education’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (2.678)^{aa}.
 - In this group, 93.78% answered ‘Yes’, 2.87% answered ‘No’, and 3.35% answered ‘Undecided’.
- Respondents whose occupation was in ‘Environment, Nature & Wildlife’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (1.711). They were also statistically more likely than the other respondents to be undecided than oppose (2.150)^{bb}.
 - In this group, 90.15% answered ‘Yes’, 4.25% answered ‘No’, and 5.60% answered ‘Undecided’.
- Respondents whose occupation was in ‘Farming & Agriculture’ were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.072). They were also statistically less likely than the other respondents to be undecided than oppose (0.281)^{cc}.
 - In this group, 50.59% answered ‘Yes’, 40.00% answered ‘No’, and 9.41% answered ‘Undecided’.
- Respondents whose occupation was in ‘Fisheries & Aquaculture’ were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.073). They were also statistically less likely than the other respondents to be undecided than oppose (0.160)^{dd}.
 - In this group, 47.37% answered ‘Yes’, 47.37% answered ‘No’, and 5.26% answered ‘Undecided’.

^z $X^2_{(2,3742)}=9.854$, Nagelkerke $R^2=0.005$, $p<0.01$

^{aa} $X^2_{(2,3742)}=15.916$, Nagelkerke $R^2=0.007$, $p<0.001$

^{bb} $X^2_{(2,3742)}=7.761$, Nagelkerke $R^2=0.004$, $p<0.05$

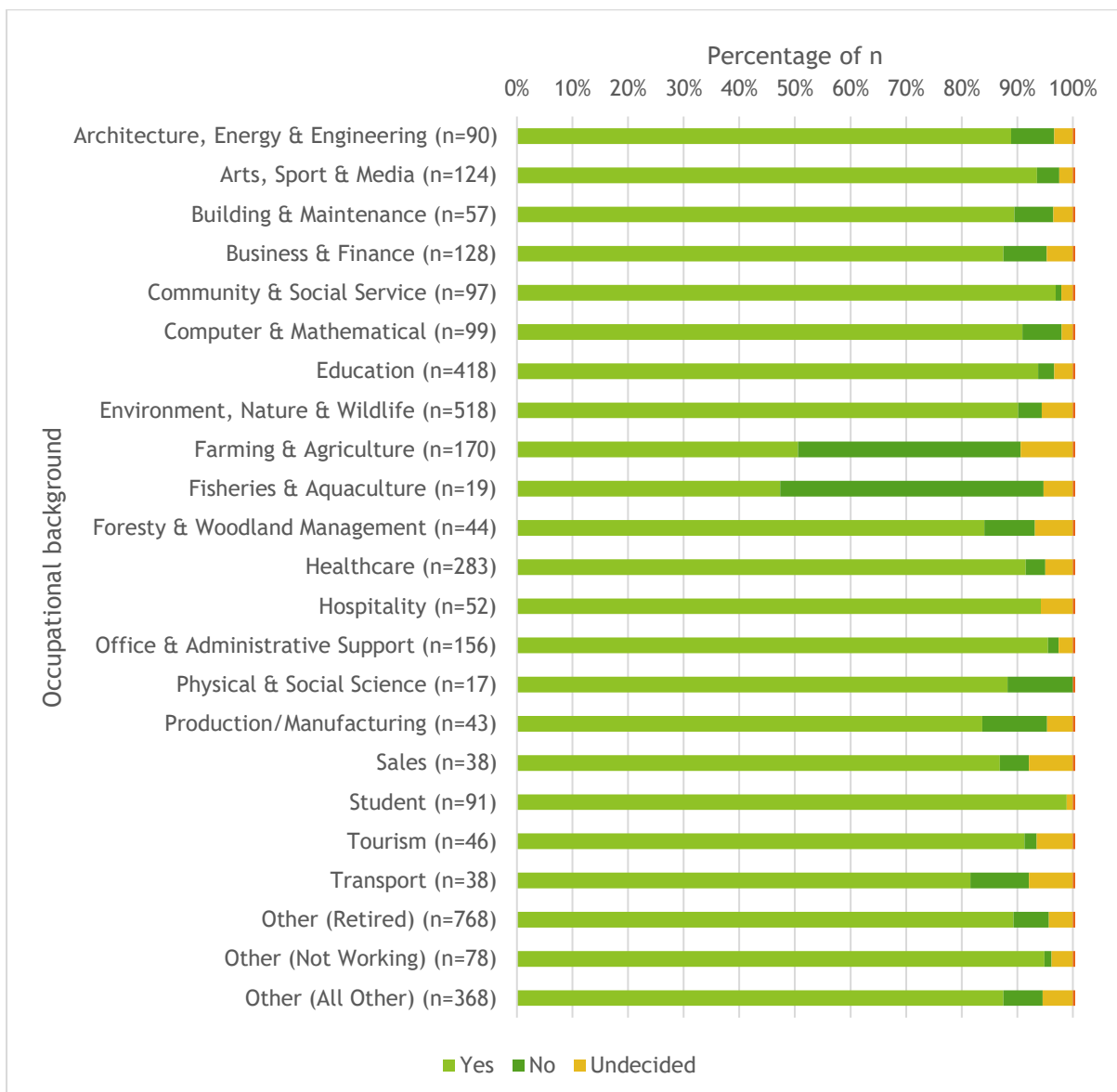
^{cc} $X^2_{(2,3742)}=185.210$, Nagelkerke $R^2=0.084$, $p<0.001$

^{dd} $X^2_{(2,3742)}=24.370$, Nagelkerke $R^2=0.011$, $p<0.001$

- Respondents whose occupation was in ‘Office & Administrative Support’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (3.900)^{ee}.
 - In this group, 95.51% answered ‘Yes’, 1.92% answered ‘No’, and 2.56% answered ‘Undecided’.

The relationship between occupation and support for beavers living wild in Wales is visualised in Figure 7.

Figure 7. Relationship between whether participants support beavers living wild in Wales and the participants’ occupation. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



^{ee} $X^2_{(2,3742)}=10.205$, Nagelkerke $R^2=0.005$, $p<0.01$

Relationship between the level of support and where respondents had heard about the survey

3748 respondents from Wales answered both the question and identified where they had heard about the survey.

- Respondents who heard about the survey from the ‘Press (ie. Newspaper, News Website etc.)’ were statistically less likely than the other respondents to be undecided about beavers living wild in Wales, rather than oppose (0.517)^{ff}.
 - In this group, 92.07% answered ‘Yes’, 5.72% answered ‘No’, and 2.21% answered ‘Undecided’.
- Respondents who heard about the survey from a ‘Social Media Post’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (1.696). They were also statistically more likely than the other respondents to be undecided than oppose (1.571)^{gg}.
 - In this group, 90.81% answered ‘Yes’, 4.74% answered ‘No’, and 4.44% answered ‘Undecided’.
- Respondents who heard about the survey from a ‘Wildlife or Nature Organisation’ were statistically more likely than the other respondents to support beavers living wild in Wales than oppose (1.748). They were also statistically more likely than the other respondents to be undecided than oppose (2.253)^{hh}.
 - In this group, 90.11% answered ‘Yes’, 4.29% answered ‘No’, and 5.60% answered ‘Undecided’.
- Respondents who heard about the survey from a ‘Farming Organisation’ were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.016). They were also statistically less likely than the other respondents to be undecided than oppose (0.254)ⁱⁱ.
 - In this group, 17.31% answered ‘Yes’, 69.23% answered ‘No’, and 13.46% answered ‘Undecided’.
- Respondents who heard about the survey from a ‘Fishing Organisation’ were statistically less likely than the other respondents to support beavers living wild in Wales than oppose (0.022). They were also statistically less likely than the other respondents to be undecided than oppose (0.134)^{jj}.

^{ff} $X^2_{(2,3748)}=16.373$, Nagelkerke $R^2=0.008$, $p<0.001$

^{gg} $X^2_{(2,3748)}=13.476$, Nagelkerke $R^2=0.006$, $p<0.001$

^{hh} $X^2_{(2,3748)}=12.804$, Nagelkerke $R^2=0.006$, $p<0.05$

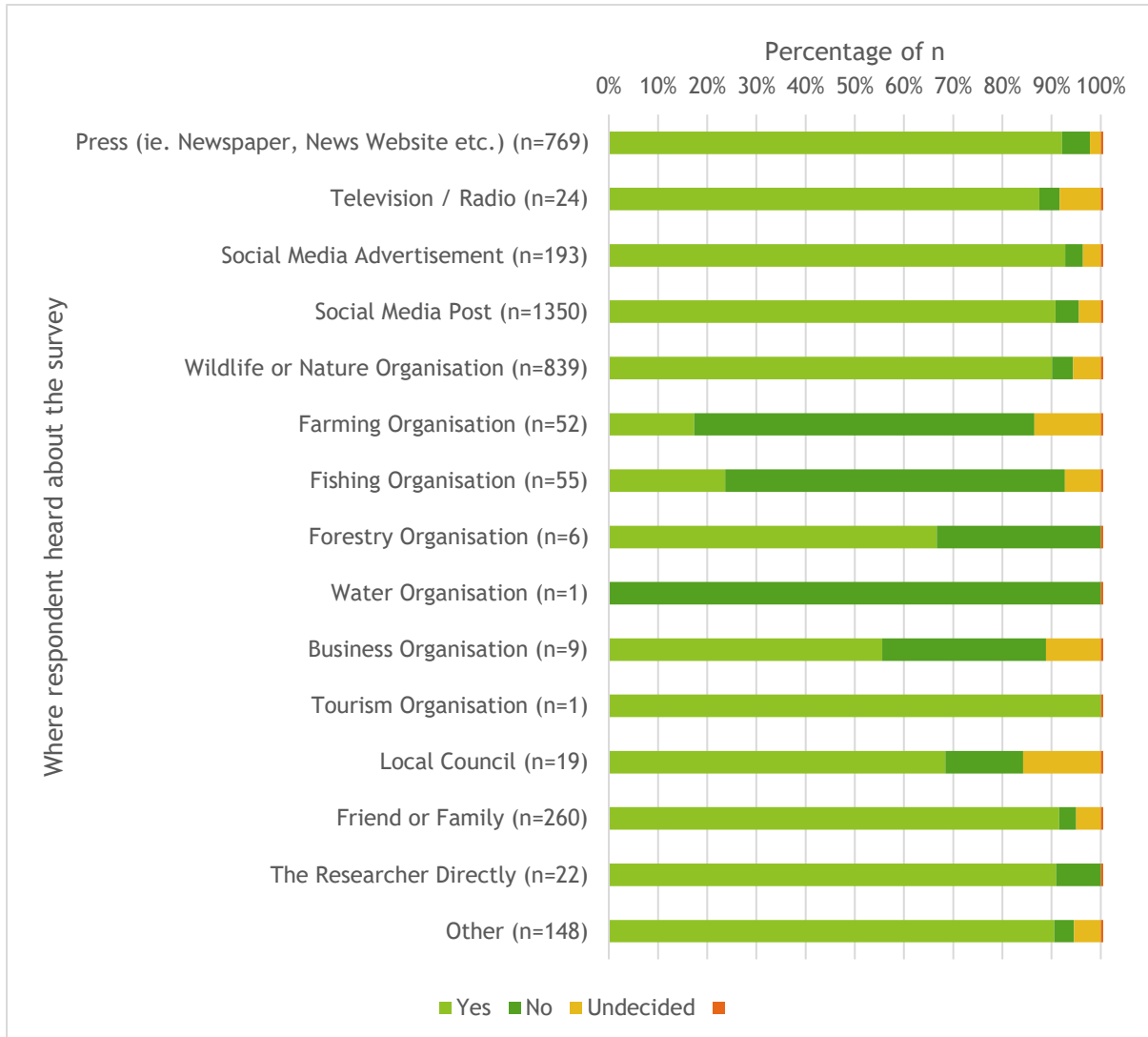
ⁱⁱ $X^2_{(2,3748)}=159.228$, Nagelkerke $R^2=0.072$, $p<0.001$

^{jj} $X^2_{(2,3748)}=173.781$, Nagelkerke $R^2=0.069$, $p<0.001$

- In this group, 23.64% answered ‘Yes’, 69.09% answered ‘No’, and 7.27% answered ‘Undecided’.

The relationship between support for beavers living wild in Wales and where respondents heard about the survey is visualised in Figure 8.

Figure 8. Relationship between whether participants support beavers living wild in Wales and where the participant heard about the survey. (Key denotes responses to Question 7: ‘Yes’ = supports beavers living wild in Wales; ‘No’ = does not support beavers living wild in Wales)



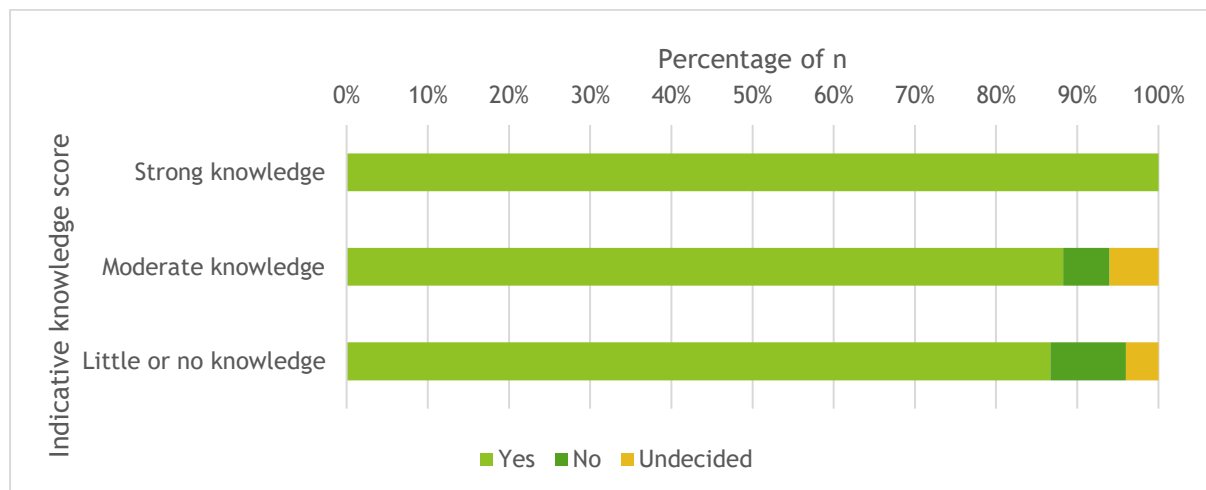
Relationship between the level of support and the indicative knowledge score

3589 respondents from Wales answered the question and all five questions on beaver ecology (detailed in [section 2](#)).

The statistical models indicated that the indicative knowledge score was not a good predictor of the view on beavers living wild in Wales and no statistically significant results were found.

The relationship between support for beavers living wild in Wales and indicative beaver knowledge score is visualised in Figure 9.

Figure 9. Relationship between whether participants support beavers living wild in Wales and the participants' indicative knowledge score. (Key denotes responses to Question 7: 'Yes' = supports beavers living wild in Wales; 'No' = does not support beavers living wild in Wales)



Summary of reasons given for support or opposition to beavers living wild in Wales

Respondents were asked to briefly explain the main reason for their answer. The following Tables 16 to 18 provide an overview of the reasons that were given by Welsh residents (in both languages), broken down by participant stances on beavers living wild in Wales (support, oppose, and don't know).

In each table there are four columns: the first gives the primary or first reason given for their stance; the second column gives further detail (meaning either further clarification or a secondary reason given by participants); the third column gives examples of some of the comments made that relate to the reasons given; and the final column gives a count of the number of comments left that related to the primary reason.

The question asked respondents to provide their main reason, but many respondents provided more than one reason. Secondary reasons are given in the second column, however the counts relate to the primary / first reason given in the first column only.

Of those who supported beavers living wild in Wales, 3035 respondents in total provided a response. 113 of these were however discounted from the analysis as they were unclear. A summary of reasons given by this group is given in Table 16.

Of those who opposed beavers living wild in Wales, 235 respondents in total provided a response. 7 of these were however discounted from the analysis as they were unclear. A summary of reasons given by this group is given in Table 17.

Of those who supported beavers living wild in Wales, 137 respondents in total provided a response. 1 of these was however discounted from the analysis as it was unclear. A summary of reasons given by this group is given in Table 18.

Reminder: This report deals with opinions only and it is not the role of the research team to determine what is 'correct' or 'incorrect'. In all qualitative tables, responses or opinions may or may not be supported by scientific evidence.

Table 16. Summary of reasons given by participants for supporting beavers living wild in Wales.

Primary or first reason	Further detail or secondary reasons	Quote	Count
Beavers will improve biodiversity / are positive for the environment / create and restore wetland habitats.	<ul style="list-style-type: none"> -Keystone species / ecosystem engineers. -Prevent / slows / alleviates flooding and improves water quality. -Native species. -Increase tourism / engage the public more with nature. -Easily monitored and managed / impacts on other organisms fully understood. -Help fish stock, as long as beaver don't effect migratory fish. -Provide habitats that can act as a carbon sink and aid with climate change. -Restore natural balance 	<p><i>"They contribute to the health of the environment"</i></p> <p><i>"They encourage biodiversity and create valuable ecosystems."</i></p> <p><i>"I think they will likely improve biodiversity along our waterways, possibly decrease the impact of some invasive species, and create more marsh and wetland, which can function as a CO2 sink."</i></p> <p><i>"Beavers create habitat mosaics around waterways increasing floristic diversity and pollinators. Fish also benefit from the nursery conditions provided by beaver damns."</i></p>	992
Beavers both increase biodiversity / improve environment as well as manage waterways / rivers.	<ul style="list-style-type: none"> -Prevent / slows / alleviate flooding and enhance water quality. -Native species. -Aid drought prevention / help retain water. -Create habitats. -Ethical motivation. -Increase fish stocks. -Increase tourism and beneficial social impacts. -Easily managed. 	<p><i>"To assist with water retention / slowing down the flow of water in to rivers during high rainfall periods. Also because the habitats they create promote sustainable ecological diversification"</i></p> <p><i>"Restoration of riverside habitat to improve flooding issues and biodiversity"</i></p> <p><i>"Habitat engineers, good for biodiversity, flood management, no brainer"</i></p>	508
Waterway / river/ land management.	<ul style="list-style-type: none"> -Prevent / slows / alleviate flooding. -Enhance water quality. -Concerns over migratory fish habitat. -Concerns over effects on arable land. 	<p><i>"To restructure hydrology in a way that stores more wa[t]er upstream and regulates run off to alleviate flooding"</i></p>	476

	<ul style="list-style-type: none"> -Aid drought prevention. -Native species. -Manage environment; including coppicing of trees and preventing soil erosion. -Effective at storing carbon. -Ethical motivations. -Increase tourism. -Increase the local biodiversity to waterways and surrounding lands. -Natural flood management / Nature-based solutions -Relatively cheap option 	<p><i>"I believe they are a natural solution to help prevent both flooding and drought"</i></p> <p><i>"For natural flood management. Allowing the nature to become its own custodian in some small way."</i></p> <p><i>"I feel it's vital to support the natural management of waterways"</i></p>	
Beavers are a native / indigenous species.	<ul style="list-style-type: none"> -Positive impacts on biodiversity and environment. -Provide habitats that can act as a carbon sink and aid with climate change. -Prevent / slows / alleviate flooding. -Enhance water quality. -Increase tourism. -Ethical motivations. 	<p><i>"They are native to Wales."</i></p> <p><i>"They were here originally and there is extensive evidence as to how good they are for stream and wetland ecology so they should be returned"</i></p>	338
Ethical motivation.	<ul style="list-style-type: none"> -Beavers are good for river management and flood alleviation. -Increase biodiversity and bring environmental benefits. -Create and manage wetland habitat. -Beavers are a native species. 	<p><i>"We had beavers in Wales before they were hunted to extinction"</i></p> <p><i>"They're an indigenous species made extinct through the greed and ignorance of man."</i></p>	201
General support for reintroduction / restoration / rewilding projects (not specifically beavers).		<p><i>"Support the concept of rewilding in general"</i></p> <p><i>"Because I support the restoration of natural habitats for increased biodiversity, the slowing of rivers to prevent flooding and the sharing of the landscape with non humans"</i></p>	111

General supporting comment (specifically beavers)	-Why not?	<i>"I'm a bold beaver believer"</i>	100
Positive outcomes beaver projects elsewhere used as an example.	-Beaver projects from England (examples given include Knepp, Willington, Ham Farm, Somerset Levels, Devon, Dorset, Cornwall), Scotland (Knapdale), Europe, USA and Canada. -Beaver have proven to aid with increasing biodiversity and waterways management in projects / in the wild elsewhere.	<i>"I have seen the good work they do in England, especially those under the care of Kent wildlife trust at Ham Fen"</i> <i>"From other projects over the UK, the overall results have been positive in helping to reduce flooding, mitigating the effects of prolonged drought periods and generally increasing biodiversity"</i>	90
Wales / UK biodiversity is depleted.	-To many organisms at risk of going extinct.	<i>"Wales is one of the most natur[e] depleted countries in the world and beavers are an amazing help in restoring nature and mitigating climate driven crises."</i>	31
There is space and suitable habitat for beavers in Wales.		<i>"Rural Wales is a sparsely populated area that is an ideal habitat "</i>	18
The benefits outweigh the negatives.		<i>"Positives appear to outweigh negatives "</i>	16
Resilience to climate change		<i>"I think drastic action is needed to fight climate change and improve ecosystem resilience"</i>	10
Improve riverine water quality.	-Increase local biodiversity. -Alleviate flooding.	<i>"They help create dams which help stop phosphate run off into the riverine environment"</i>	10
Engages more people with their local environment / co benefits to people and nature.	-New wildlife could increase tourism to parts of Wales.	<i>"I believe the reintroduction of beavers would be inspiring for the people of Wales and help improve connections to our outdoors and nature."</i> <i>"Potential to boost Welsh economy through tourism. Minimal impact on salmonid migration and agriculture. Improvements in water quality and slowing the flow. "</i>	9

There are already beavers in Wales.	-Native species good for the environment.	<i>"I am confused by this as there are already beavers in Wales. There is a project in Machynlleth"</i>	4
Accepts the reintroduction beavers in managed areas / in controlled numbers.	-Selected area should consider possible conflicts.	<i>"I support the introduction of Beavers but in a highly controlled manner where if needed [their] numbers are managed"</i>	4
Encourage policy makers in the UK.	-Encourage / raise awareness to clean up river systems. -Raise awareness for the need for further rewilding.	<i>"...The presence of beaver might encourage the government to do more to prevent so much pollution from destroying the ecosystem"</i>	4
No threat to other species including humans.	-Good habitat management. -Improve biodiversity. -Alleviate flooding. -Increase tourism.	<i>"They do not present any danger to humans and will help improve ecology and biodiversity"</i>	3
Concern over destruction to private land, footpaths and riverbanks.		<i>"They will destroy privately owned land and undermine river banks and cause footpaths and bridleways to be closed for safety reasons."</i>	2
General support for local Wildlife Trust or experts.		<i>"I support the NWWT"</i>	2
This reintroduction will ensure beavers future survival.		<i>"I believe it will ensure that beavers will be able to survive any extinction plus they will have protected habitats"</i>	2
For reasons published by the media.		<i>"For all the reasons I have read about and seen on TV etc"</i>	1
Tolerance for other non-native species.		<i>"I think it is worth trying we tolerate other non native species, eg pheasants."</i>	1
Conditional on impact on fish movement.		<i>"Yes, provided there is some way to prevent them from totally blocking up- and downstream fish movements."</i>	1
Conservation		<i>"Conservation"</i>	1
A safer feeling knowing natural ecosystems are being restored.		<i>"I would feel safer and happier knowing a natural [part] of our ecosystem is being restored,"</i>	1

Uncertainty about the species.

“I would prefer the native beaver species but if we have none left then this species should be able to adapt without major conflict.” 1

Table 17. Summary of reasons given by participants for opposing beavers living wild in Wales.

Reason	Further detail	Quote	Count
Negative impact on migratory fish and their habitat.	<ul style="list-style-type: none"> -Damage to trees. -Destruction -No natural predators. 	<p><i>“Obstruction of spawning grounds”</i></p> <p><i>“Detrimental risk to salmon and sea trout”</i></p> <p><i>“They cause enormous damage to breeding waters for migratory fish, including preventing fish from reaching their spawning grounds”</i></p> <p><i>“they damag[e] fisheries especially salmon and sea trout, beavers cause flooding, cut down trees indiscriminately including in SSSis, they now have no predators and will expand in an uncontrolled manner,”</i></p>	45
Upsetting the balance of current ecology or the environment.	<ul style="list-style-type: none"> -Negative impacts on migratory fish. -Negative impacts on farmers / agricultural land. -They are not an endangered species. -Ecology has moved on since beavers became extinct. -No longer a natural niche 	<p><i>“I feel that it will advers[e]ly affect the balance of nature, predominantly because all the natural predators that would hunt the beaver have also become extinct or eradicated from the UK.”</i></p> <p><i>“Will unbalance current wildlife”</i></p> <p><i>“Landscape has moved on in 500 years and there is no longer a natural niche”</i></p>	25
Negative impact on river systems and flooding.	<ul style="list-style-type: none"> -Cause difficulties for migratory fish. -Flood farmland effecting livelihoods. -No natural predator. -Rivers are too polluted. -Money better spent elsewhere. 	<p><i>“beavers cause a lot of problems by building dams and flooding areas of land.”</i></p> <p><i>“Beaver dams and waste will clog up rivers adding to flood risk and preventing fish migration.”</i></p>	23

		<i>“Rivers too polluted, flood plains overstretched, too much building in flood plain, no natural predators to control population numbers. Money better spent elsewhere.”</i>	
There will be no control over populations / no natural predators to control populations.	<ul style="list-style-type: none"> -Due to the protected status of the beaver human intervention will not be able to occur to control populations. -Damage local environment. -No way of keeping beavers off private land. -They have had to be removed from a location in England 	<p><i>“I know that they have been introduced in England and in one area they have had to be removed . They have no natural predator only man and farmers will have no control of consequences.”</i></p> <p><i>“No means of population control”</i></p> <p><i>“no natural predator, will eventually need culling. risk of destruction of very rare & valuable landscapes if uncontrolled.”</i></p>	20
Damage trees and river structure due to dams and burrowing.	<ul style="list-style-type: none"> -Cause danger to humans and pets. -Loss / damage to farmland leading to a loss in livelihood. -Carry disease. 	<i>“destructive of river banks and bad for trees. Causing uncontrolled flooding as well.”</i>	16
Negative impacts on farmers, farming, or farming livelihoods.	<ul style="list-style-type: none"> -Disease risk. -Upset current ecological balance locally. -No benefit to Welsh countryside. -Detrimental to food production. 	<p><i>“Damage to crops and river banks and fields”</i></p> <p><i>“Beavers live on waterways which is the best land most farmer have use of why would anyone want to give that up”</i></p> <p><i>“I heard they have TB and can cause massive problems for farmers who are already under tremendous stress right now”</i></p> <p><i>“I do not believe that they will bring any long term benefits indeed [cause]”</i></p>	15

		<i>many detrimental issue[s] for food production”</i>	
Beaver damage / destroy trees.	-We should be protecting trees. -Cause damage to farmland / crop. -Cause difficulties for migratory fish.	<i>“Destruction of TREES”</i>	13
		<i>“When we are busy planting more trees, beavers are destroying them.”</i>	
Negative experiences / damage caused by with Beavers referenced from other projects /countries.	-Reference to destruction beavers have caused elsewhere (examples given include in Scotland or Canada).	<i>“Because I have seen the unwanted destruction to trees in Scotland and no used for habitat.”</i>	9
The consequences of reintroducing beavers are unknown.		<i>“All human interventions in these matters have in the past been fraught with unintended consequences. The world the beavers ranged in the neolithic is very different to the world of today”</i>	8
Resources should be concentrated on preserving / helping current declining species and land issues.	-Concentrate on upland grazing. -Focus in the biodiversity we currently have. -Concentrate on conservation that has less impact on fish.	<i>“Main reason is we’ve plenty of species in danger and should be looking after what we have, the spin about Beaver helping with environmental control and flood control is weak to say the least.”</i>	8
They are extinct for a reason.	-Extinct for 400 years. -They will kill fish.	<i>“They became extinct for a reason modern living has no place for these rodents”</i>	7
A destructive species / will cause damage.	-Been extinct too long.	<i>“The damage that Beavers will cause would be unacceptable.”</i>	6
Should not (re)introduce non-native species.		<i>“Why reintroduce a non native species that causes so much damage to trees and other wildlife?”</i>	6
		<i>“Because I believe in indigenous animals. If we had British beavers, then we return British beavers“</i>	
Wales does not have the space for beavers.	-Beavers will cause too much conflict.	<i>“There is not enough wild space left in Wales to accommodate beavers in the long term and there will inevitably be clashes</i>	6

		<i>between farming needs and animal needs. Do we need prime farming land flooded</i>	
Ethical motivation.	-Beavers will be hunted. -Used as a commodity.	<i>“Because they will be slaughtered on mass by the hunting fraternity and farmers.”</i>	4
		<i>“I worry that wildlife is used as a commodity. Just because an animal or bird exists, we as humans do not have 'a right' to see it.”</i>	
General comment in favour of beavers	-With the condition that they can be controlled and managed to mitigate potential destruction.	<i>“It would be good for the eco system”</i>	3
Beaver cause disease.		<i>“Known to spread disease; Farmers have enough problems already...”</i>	2
Lack of trust in science / academic behind reintroductions.		<i>“From personal experience of the releasing of mink, the releasing of goshawk, and the early prohibition of killing grey squirrels the academics have a great deal to learn about common sense”</i>	2
Disturb existing management of countryside in Wales.		<i>“It will disturb existing management which has evolved over centenaries when beaver have not existed.”</i>	2
Impacts beavers will have on / their competition with existing small mammals.		<i>“It would be good for the eco system Worried that they might be ruthless towards small mammals !!”</i>	2
Lack of effective monitoring and planning.	-Fear that beaver created habitat will not survive.	<i>“Not likely to be monitored effectively”</i>	2
Supportive if beavers can be managed.		<i>“I support the introduction of beavers to some areas of Wales, conditional on ability to control and manage populations and restrict populations where detrimental to other species.”</i>	2
Once project funding stops there will be inadequate control.	-They will cause more harm than good.	<i>“Once the wildlife trusts project funding stops, I can see the beavers becoming</i>	1

	<i>unsupported/inadequately controlled to the point they will be doing more harm than good to the environment.”</i>	
Not natural.	<i>“Strongly believe this is not natural. Why don’t we go back in every other aspect in life as well. Too many experts who think they know best.”</i>	1
Already have wetland areas	<i>“we already have wetland areas”</i>	1

Table 18. Summary of reasons given by participants who were unsure whether or not they support beavers living wild in Wales.

Reason	Further detail	Quote	Count
Do not feel well enough informed to make a decision.	-Need to know more information about the positives and negatives of beaver reintroduction. -Landowners have had little consideration.	<i>“I don't know anything about Eurasian Beavers and whether they fit with the environmental context in Wales.”</i> <i>“Need to know more about site, aims, monitoring etc”</i> <i>“Not enough knowledge on the pros and cons of reintroduction”</i>	51
Need more information on potential impacts of beavers to local areas and environments.	-Not enough evidence has been presented. -Concerns with possible negative effects to the environment.	<i>“Unsure about their impact on the landscape and other species”</i>	18
Concerns over how beaver populations or their impacts may be managed.	-Concern over unlicensed releases. -If beavers become a nuisance, how will they be removed? -Concern over agricultural impacts and impacts on migratory fish. -Does not support culling.	<i>“Concern about unlicensed releases”</i> <i>“I do not support the culling of beavers in Scotland. If a population is to be managed so strictly that 80% of them are culled annually then that is not reintroduction, conflicts with neighbouring farm”</i>	11
Concerns over potential damage caused to surrounding environments	-Through damaging trees and flooding. -Effecting farmland and agriculture.	<i>“I have concerns that local damage to trees and localised flooding from dams will be a problem”</i> <i>“Beaver can cause damage to farm land and vegetation including trees”</i>	9
Resources and efforts should be directed at current endangered species and lands.	-Other environmental impacts that are more important.	<i>“Unsure whether species reintroductions are the best focus for nature recovery (efforts and resources) in the UK”</i>	5
Concerns on the impacts on farmers and agriculture.	-Cause flooding and impact fish stocks. -Concerns over lack of natural predator.	<i>“Not sure about any impact on agricultural land”</i>	5

Concerns over impacts on the river system and migratory fish.	-Concern over impact on salmonoids -Concerns over effect on migratory fish spawning grounds.	<i>“Potential impacts to anadromous salmonid upstream/ downstream migration and alteration of suitable habitat to less optimal”</i>	5
Questioning the suitability of habitat / space for beavers in Wales.	-Costs may be better spent on other species. -Environment already compromised by man. -Limited spaces for wild animals.	<i>“Unsure how much of the landscape is suitable, wary of conflicts and the cost of implementing may be better spent on other native species. Can also see positive of extending their range in the UK”</i>	5
Beavers will increase biodiversity / help restore ecosystems.	-Ethical motivations -Concern over no natural predator. -Concerns over conflicts with farmers.	<i>“There are significant ecological advantages but humans need to adapt to accommodate the reintroduction. Supporting a scheme of reintroduction only to find they are shot by farmers would be cruel,”</i>	5
More unbiased scientific data is required before a decision can be made.	-More research into suitable areas to prevent flooding.	<i>“Not enough independ[e]nt evidence has been given to decide”</i>	5
Unexpected consequences could be caused by reintroduction.	-Reintroduction in the wrong places could cause damage. -Beaver impacts are not fully understood.	<i>“Impact of beavers on water bodies that already naturally diverse is not fully understood.”</i> <i>“Fear of the consequences of further beaver releases in my area.”</i>	4
There are both positives and negatives to reintroduction projects.		<i>“Think there may be positives and negatives associated with their introduction”</i>	3
Uncertainty about the species.		<i>“Unsure on their species”</i>	3
Not heard of the Welsh Beaver Project.		<i>“Haven't heard of this project”</i>	2
General supportive statement.	-If an exit strategy is agreed. -No adverse effect on other animals.	<i>“I would be happy for beavers to be released in appropriate areas with full agreement of interested parties an exit strategy in place should there be any problems.”</i>	2

Querying the habitat suitability	-Will beavers be good river system stewards.	<i>“Does modern land use provide enough to facilitate beaver populations. Will beavers present a problem to tree planting and other conservation targets”</i>	2
		<i>“It’s a long time since they were here and I[’]m not clear whether their behaviour will Definitely help flooding and mitigating the poor stewardship of our rivers or not”</i>	
A current topic of interest.		<i>“Hot topic.”</i>	1
Supportive of beavers within reserves, but not necessarily in the wild		<i>“Because they help to restore ecosystems and prevent flooding, but farmers won’t all welcome them onto their land. Certainly within reserves etc, but not necessarily in the wild”</i>	1
Comment about the survey.		<i>“question too early in this survey without context or management plan”</i>	1
Not natural to Wales		<i>“Not natural to Wales”</i>	1

2.3. SECTION 3: BEAVER MANAGEMENT

Question 9: If beavers are reintroduced, to what degree (if any) should they be legally protected?

Respondents were offered the opportunity to answer ‘Strong Legal Protection’, ‘Limited Legal Protection’, or ‘No Legal Protection’ in response to this question, followed by the opportunity to describe the main reason for their answer.

Summary of overall levels of support for different levels of legal protection

3746 Wales residents answered this question, of which 83.72% answered ‘Strong Legal Protection’, 11.16% answered ‘Limited Legal Protection’, and 5.13% answered ‘No Legal Protection’.

In the 2017 survey of Britain, the same question was asked. Of 2732 respondents who answered the question, 74.93% answered ‘Strong legal protection’, 19.77% answered ‘Limited Legal Protection’, and 5.31% answered ‘No Legal Protection’.

The percentage figure for ‘Strong Legal Protection’ was therefore 8.79% higher in this Welsh survey, whilst the figure for ‘No Limited Legal Protection’ was 8.61% lower than the figure in the 2017 survey of Britain. The percentage figures for ‘No Legal Protection’ were similar between the surveys, with this Welsh survey only being 0.18% lower than it was in the 2017 survey of Britain.

The relationship between these two sets of results was statistically significant^{kk}.

Levels of support for different levels of legal protection in relation to whether respondents support / do not support beavers living wild in Wales.

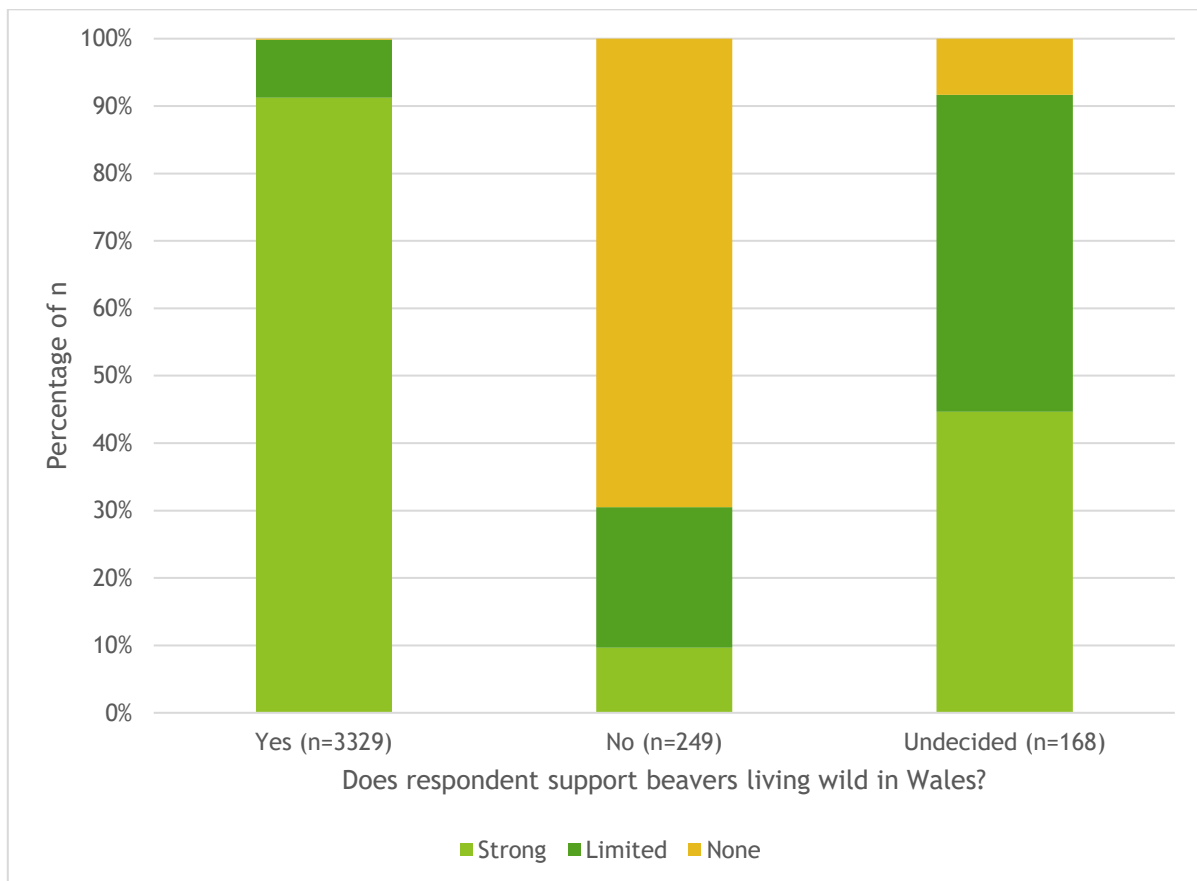
3746 respondents answered both this question and the question of whether they support beavers living wild in Wales, and there was found to be a statistically significant relationship between the answers given for these two questions^{ll}. This relationship is visualised in Figure 10.

- Of those who supported beavers living wild in Wales (n=3329), 91.23% selected ‘Strong Legal Protection’, 8.62% selected ‘Limited Legal Protection’, and 0.15% selected ‘No Legal Protection’.
- Of those who did not support beavers living wild in Wales (n=249), 9.64% selected ‘Strong Legal Protection’, 20.88% selected ‘Limited Legal Protection’, and 69.48% selected ‘No Legal Protection’.
- Of those who were undecided about beavers living wild in Wales (n=168), 44.64% selected ‘Strong Legal Protection’, 47.02% selected ‘Limited Legal Protection’, and 8.33% selected ‘No Legal Protection’.

^{kk} $\chi^2=94.495$, $df=2$, $p<0.001$

^{ll} $\chi^2=2626.3$, $df=4$, $p<0.001$

Figure 10. Relationship between whether participants support beavers living wild in Wales and the participants’ view on the level of legal protection that should be applied if beavers are reintroduced. (Key denotes responses to Question 9)



For the purposes of an *indicative* comparison **only** (as one of the questions was slightly different - see [question 8](#)), a similar statistical relationship was observed in the 2017 survey of Britain between whether those respondents supported reintroduction of beavers to Great Britain and the level of legal protection they felt should be applied if beavers were reintroduced:

- Of those who supported beaver reintroduction to Great Britain (n=2356), 83.28% selected ‘Strong Legal Protection’, 16.43% selected ‘Limited Legal Protection’, and 0.30% selected ‘No Legal Protection’.
- Of those who did not support beaver reintroduction to Great Britain (n=199), 7.04% selected ‘Strong Legal Protection’, 32.66% selected ‘Limited Legal Protection’, and 60.30% selected ‘No Legal Protection’.
- Of those who were undecided about beaver reintroduction to Great Britain (n=170), 40.59% selected ‘Strong Legal Protection’, 50.59% selected ‘Limited Legal Protection’, and 8.82% selected ‘No Legal Protection’.

Summary of reasons given for support for levels of legal protection

Respondents were offered the opportunity to provide a reason for their answer. As the response field was for open text, some participants provided more than one reason for their view. In these instances (and as this question did not ask for the **main** reason as in Question 8), each reason given was counted individually.

Of those who answered 'Strong legal protection', 2676 respondents in total provided a response. 65 of these were however discounted from the analysis as they were unclear. A summary of reasons given by this group is given in Table 19.

Of those who answered 'Limited legal protection', 339 respondents in total provided a response. Two of these were however discounted from the analysis as they were unclear. A summary of reasons given by this group is given in Table 20.

Of those who answered 'No legal protection', 169 respondents in total provided a response. Three of these were however discounted from the analysis as they were unclear. A summary of reasons given by this group is given in Table 21.

Reminder: This report deals with opinions only and it is not the role of the research team to determine what is 'correct' or 'incorrect'. In all qualitative tables, responses or opinions may or may not be supported by scientific evidence.

Table 19. Summary of reasons given by participants who believed beavers should be given *strong* legal protection, if they were reintroduced.

Explanation	Further Detail	Example Quote(s)	Count
Protect beavers from persecution or killing	<ul style="list-style-type: none"> -Protection from those who oppose beavers / those who oppose reintroduction / an interest group -Protection (or deterrent) from hunting / killing / harm / disturbance / ignorant people / poaching / tourism disruption -Stop people taking law into their own hands -Protect welfare of the beavers -Beavers may be targeted as a ‘novelty’ / for fur / if seen as a pest / due to misinformation -Examples of persecution cited, including of raptors, foxes, badgers, ospreys 	<p><i>“Without protection they will be more open to hunting, disturbance and persecution.”</i></p> <p><i>“There will always be the dissenters who don't wish to have them and are likely to try and destroy them and their habitat.”</i></p> <p><i>“The record of wildlife persecution in UK is not good e.g osprey nest in Wales cut down.”</i></p>	1434
Enable time to establish population	<ul style="list-style-type: none"> -Population will be vulnerable when small -Ensure genetic diversity -Low population density at first -Protection while people learn to live with them / learn of benefits -Could be assessed / reviewed / changed at a later date -Reduce when natural predator reintroduced 	<p><i>“They will need greater protection until the numbers a large enough to be sustainable”</i></p> <p><i>“Any re-introduction needs strong protection, which can always be reviewed in due course.”</i></p>	387
Ensure survival as a population	<ul style="list-style-type: none"> -To not repeat history -Help them thrive -Duty of care 	<p><i>“We don't want them to go extinct in wales again if introduced”</i></p> <p><i>“To prevent history repeating itself - a decline in their population again would be awful for the environment and them too!”</i></p>	208
Enable a successful reintroduction	<ul style="list-style-type: none"> -Otherwise there is no point reintroducing them -To allow a trial to properly assess pros and cons 	<p><i>“Reintroduction is expensive and delicate, and beavers should be afforded legal protection to support the success of their reintroduction”</i></p>	139

	<ul style="list-style-type: none"> -To ensure resources or effort are not wasted -Responsible reintroduction 	<p><i>“To ensure their successful reintroduction and associated ecological benefits”</i></p>	
All wildlife / animals should be protected	<ul style="list-style-type: none"> -All native species / beavers are native species -Already lost so much -Not enough animals receive strong protection -Too much wildlife is persecuted 	<p><i>“All animals should have strong legal protection”</i></p> <p><i>“All native species should be treasured and protected”</i></p>	111
General comment in favour of strong legal protection		<p><i>“I think it's very important that they are protected”</i></p> <p><i>“Why not?”</i></p>	88
But with mitigation / management where there are issues	<ul style="list-style-type: none"> -Support for those who may experience negative impacts -Good farm liaison -Ability to apply for consent to translocate -Support official management -Using humane methods of management 	<p><i>“They should be protected but there should be remedies for instances where harm is caused or there is loss to a landowner as a result of their introduction. This could form part of ELMS”</i></p> <p><i>“Management of beavers should be something done in conjunction with experienced professionals using a range of techniques. Killing wildlife is not the first resort.”</i></p>	64
Beaver benefits	<ul style="list-style-type: none"> -Benefits for biodiversity / wildlife / environment / reducing flooding -Keystone species / ecosystem engineers -Protection would also benefit their habitat 	<p><i>“They will increase river health hugely, decrease flood risks and provide millions of pounds worth of river management for free”</i></p> <p><i>“Because they have a good impact on the environment”</i></p>	60
Like other species do	<ul style="list-style-type: none"> -Examples of species given 	<p><i>“They need to be protected similar to other mammals”</i></p> <p><i>“I would expect them to have the same protection as any other rare native species,</i></p>	32

		<i>especially given that they are a keystone species in their ecosystem”</i>	
Beavers have a right to be here	-Duty to protect beavers -Beavers deserve to live freely -No animals deserve to be killed by humans	<i>“They have a right to live in Wales and be protected”</i> <i>“No animals should be h[u]nted[,] it is ethically wrong”</i>	30
Needs to be strong to be effective	-If not strong enough, loopholes will be exploited -Limited protection isn’t effective	<i>“If the protection isnt strong enough then there will always be loopholes that people will exploit”</i> <i>“Because anything less won't act as a sufficient deterrent to poachers, hunters and those looking to sabotage the scheme”</i>	29
Consistency with Scotland / England	-They are already legally protected	<i>“They are protected in England and scotland i think, and as a conservation species should have the same protection here in Wales”</i>	11
Protection would recognise their importance	-Sends a strong message to the public -Shows government buy-in	<i>“strong signal that this is a key species that will enhance biodiversity in the country. Also sends a measure that wildlife crime will not be tolerated”</i>	10
Wildlife crime is not well enforced	-Lack of resource	<i>“environmental law is not sufficiently robust in enforcement”</i>	3
Should be part of a national strategic approach to natural resources management		<i>“The process of developing legal protections to support new initiatives should be part of a national strategic approach to natural resource management.”</i>	1
Clarity of rules		<i>“It helps to have clear rules about them and their reintroduction”</i>	1
I love beavers		<i>“I love beavers”</i>	1
So they are tightly contained within a designated area		<i>“so they are tightly contained within a designated area”</i>	1
They are God’s creatures		<i>“Because they are Gods creatures and deserve our protection”</i>	1

Table 20. Summary of reasons given by participants who believed beavers should be given *limited* legal protection, if they were reintroduced.

Explanation	Further Detail	Example Quote(s)	Count
Will be a need for conflict management or population control	<ul style="list-style-type: none"> -In a professional manner -Unforeseen consequences -There are no natural predators of beavers -Populations will grow -Need for flexibility -Licensed removal / translocation -Prevent negative impacts -Unexpected problems -Stronger protection -Compensation / mitigation -To reverse project if negative outcomes 	<p><i>“To allow full legal protection would not allow problematic sites to be disturbed or removed.”</i></p> <p><i>“May need to be controlled by humane means if problems occur due to lack of native predators”</i></p> <p><i>“There may be unintentional consequences regarding the population of beavers in the wild as opposed to beavers in restricted areas”</i></p>	167
Protect beavers from persecution	<ul style="list-style-type: none"> -Protection from killing -Maintain the population 	<p><i>“Beavers will need some protection and should not be killed”</i></p> <p><i>“Due to them being widely misunderstood, I believe that people would harm them or tamper with lodges.”</i></p>	71
Trade-off / balance between a reason for stronger and weaker legal protection	<ul style="list-style-type: none"> -Protect beavers but with a need for management -Integrate beavers whilst enabling the management of issues -Protect beavers whilst not alienating opposing voices -Protect beavers whilst protecting human property rights -Enable beaver benefits but with the ability for management of negative impacts -Allow natural recolonisation but not overpopulation 	<p><i>“If they’re being reintroduced they need protection to be able to thrive . But they shouldn’t be protected to the point where, if they start causing problems, nothing can be done about it”</i></p> <p><i>“If not protected some will kill for fur/status. If too protected peoples’ activities will be curtailed”</i></p> <p><i>“Need protection to establish mature populations, but need to be able to control populations if they adversely affect other</i></p>	61

	<ul style="list-style-type: none"> -Protect beavers from killing whilst supporting people negatively affected -Protect beavers without bureaucratic processes 	<p><i>wildlife or livelihood of farming neighbours</i></p> <p>”</p>	
Enable population establishment	<ul style="list-style-type: none"> -Monitor early reintroduction -Ensure reintroduction is a success 	<p><i>“They will initially be a minority species, so will need some protection, but may need to be contained in the future”</i></p> <p><i>“You would have to have strong legal at the beginning so populations can become established”</i></p>	30
To prevent alienating those who are opposed	<ul style="list-style-type: none"> -Not too strong to increase acceptability / enable buy-in from opposition voices -Overprotection can be a burden for those who are affected 	<p><i>“Due to polarised views they need protection but it needs to be pragmatic to not further polarise and alienate”</i></p> <p><i>“to assure landowners that beavers can be managed if negative impacts occur (flooding high value land)”</i></p>	16
Protection would have an impact on wider ecology	<ul style="list-style-type: none"> -Maintain ecological balance -Protection that is too strong creates imbalance in the countryside -Habitat protection more important 	<p><i>“Too much protection may impact other species etc”</i></p> <p><i>“It may well be necessary to manage the population for its own welfare and to maintain a sensible ecological balance.”</i></p>	15
Unsure or do not feel informed enough to decide		<p><i>“I do not know enough about the legal consequences at this point in time.”</i></p> <p><i>“I don't know enough so picking the balanced option. On one hand I'd like to see them protected, but I need to understand the counter arguments to protection to fully form a view”</i></p>	14
Dependent on the stage of reintroduction	<ul style="list-style-type: none"> -Strong in earlier stages -See the impact before committing to strong protection 	<p><i>“The level of legal protection should depend on the maturity and extent of the reintroduction”</i></p>	13

	-Transition period -Don't know the future	<i>"We would need to see how they balance within species structure and adverse effects they may have on habitat."</i>	
General comment	-Balanced view	<i>"This seems like a sensible middle of the road option"</i>	10
Strong legal protection can cause conflicts	-Risk that animal-human conflicts are exacerbated -Avoid the badger situation	<i>"I wonder if strong legal protection would exacerbate animal-human conflict and lead that might undermine this important programme"</i>	10
Landowners have the right to safeguard properties / manage impacts	-Should be allowed to remove beavers that are not wanted on their land	<i>"if in an inappropriate area, land owner needs to be able to control"</i>	9
		<i>"Farmers have rights too"</i>	
Should be protected like other species	-Like other wild animals -Based on conservation status	<i>"they should be treated as a like for like compared to other similar species"</i>	8
Avoid excessive red tape / bureaucratic processes		<i>"Balance to the local ecology must be maintained without excessive red tape"</i>	8
		<i>"Let the reintroduction happen very slowly by volunteer land owners. Keep the law out of it as much as possible."</i>	
Beavers have benefits	-Keystone species	<i>"To improve water management"</i>	7
Protection is difficult to enforce		<i>"Can be hard to enforce in rural areas"</i>	4
All animals should be protected		<i>"All wild animals require some protection as access to countryside increases and silviculture/agriculture and landscape management becomes more intense."</i>	4
Little demand for culling	-Not many people will want to kill -Culling may not be publicly accepted	<i>"Uk citizens will probably not accept culling of a cuddly species"</i>	2
To counter unlicensed releases		<i>"To counter unlicensed releases"</i>	1
All people's views need to be considered		<i>"...and all people's views need to be heard & considered"</i>	1

But don't want them introduced	<i>"But don't want them introduced."</i>	1
Consistency with England	<i>"Beavers are legally protected in England, I think Wales should align with this"</i>	1
Strong protection an implication that negative impacts will be tolerated	<i>"We do not know what the long term outcome of introduction will be. To provide strong protection implies that unpredictable but serious negative impacts will be tolerated"</i>	1
Dependent on who is responsible for beaver management	<i>"Difficult to decide limited or strong. Depends who will undertake mitigation, a welsh gov official? or private landowners?"</i>	1
Designated sanctuary if outside culled	<i>"Designated sanctuary if outside culled"</i>	1
Easier to increase legal protection than reduce it	<i>"Maybe an incorrect personal belief that it is easier to increase legal protection if they needed it rather than decrease it."</i>	1
Can't protect every animal as lots of dogs	<i>"Lots of dogs in the uk so cant really protect every animal"</i>	1
Incentives rather than punishment	<i>"It should be clear they are under legal protection, and incentives offered to farmers who would support having them on their land rather than offering harsh and hard to enforce punishments."</i>	1
Reason they went extinct no longer exists	<i>"They were a native spp., so shouldn't need it; hunting wild animals for food or fur is no longer countenanced (atm)"</i>	1

Table 21. Summary of reasons given by participants who believed beavers should be given *no* legal protection, if they were reintroduced.

Explanation	Further Detail	Example Quote(s)	Count
Need to be able to manage impacts or population	<ul style="list-style-type: none"> -Need to be able to control the population -Populations will rapidly grow / no natural predators -Without regulatory burden -Compensation for negative impacts 	<p><i>“If they become a nuisance it is essential that it is possible to control them”</i></p> <p><i>“Some culling should be allowed if numbers increase and cause unforeseen damage.i.e. blocking culverts”</i></p> <p><i>“As they have no predators then the reintroduction could easily get out of control! If they are rodents then man can control numbers if they are damaging fish stocks or property!”</i></p>	57
Beavers cause damage	<ul style="list-style-type: none"> -Create imbalance in nature -Damage the environment / ecology / fishing / fish stocks / property / vegetation / native species / waterways -Impact on food production 	<p><i>“Because of the damage they can do to waterways”</i></p> <p><i>“They stop fish from spawning by building dams”</i></p>	25
Opposed to beaver reintroduction	<ul style="list-style-type: none"> -Don’t belong here -Reintroduction is against people’s wishes 	<p><i>“Don't want them reintroduced to change the environment”</i></p> <p><i>“They are not in Wales at the moment so why introduce them. Will it be wolves and mammoth next!”</i></p>	24
Beavers are pests	<ul style="list-style-type: none"> -Vermin / pain / problem / menace 	<p><i>“They should be classed as a pest as they pose a risk to habitats and ecosystems”</i></p> <p><i>“I will regard them as vermin”</i></p>	19
Impacted people should be able to take action on their land	<ul style="list-style-type: none"> -Landowners / managers / fishery owners / riparian owners / farmers -Beavers 	<p><i>“They cause problems, flooding for example, and if there on your land then you should be able to protect your land”</i></p>	18

		<i>"Fisheries owners should be able to manage there own land as see fit"</i>	
Issues relating to existing laws	-Issues already with other species / need to avoid "badger scenario" -Too many / ill informed laws -Have existing laws / new protection not required	<i>"Laws are complicated to enforce and are often ineffective, ill informed and biased."</i> <i>"Look at current problems with badgers. If you give them legal protection you need the staff to supervise and assess them"</i> <i>"Firstly we already have laws concerning hunting, shooting and trapping with land access and vermin control, no new protection is required other than amendments to rifle licences allowing control"</i>	17
Beavers are not a native species	-Invasive species	<i>"They are alien to the UK ecosystem"</i>	13
Need to be able to respond to issues quickly	-Licensing system too slow -Not after a lengthy application process	<i>"Protection will inhibit timely and effective management of issues."</i> <i>"a bureurocratic licencing system is too slow"</i>	5
Why protect them?		<i>"Why should they be given legal protection?"</i> <i>"I don't see why animals should be legally protected"</i>	4
Control will drain resources		<i>"Their control will drain limited conservation resources."</i>	2
Difficult to reduce level of protection later		<i>"Legal protection is never reduced."</i>	2
Sceptical of this survey		<i>"So reintroduction is inevitable is this just a box ticking exercise - proves the point farmers and their business of food production seems totally irrelevant"</i>	2

Protect existing species	<i>"We already have species that require far more protection without adding one more novelty species that will remove resources and interest from those already in crisis"</i>	2
Beavers are not an endangered species	<i>"Beavers are not an endangered species."</i>	1
Give false impression of their suitability to survive	<i>"unequal to many other species also would give false impression of their suitability to survive"</i>	1
Need staff for monitoring	<i>"If you give them legal protection you need the staff to supervise and assess them"</i>	1
Scepticism of management technique effectiveness	<i>"I am totally against reintroduction of beavers which is another fad. I doubt whether any of the controls suggested below would be effective"</i>	1
Legal protection should be decided later	<i>"What would be the benefit of legal protection. The ecological influence for the good or the bad should be allowed to speak for itself and the question of legal protection decided at a later date"</i>	1
Who is responsible for any damage that they cause?	<i>"Who is responsible for any damage that they cause?"</i>	1
Legal protection can cause conflict	<i>"Legal protections can also conflict and lead to confusion about whether or not it is appropriate for payments."</i>	1

Question 10: If beavers are reintroduced, which (if any) methods of management would you support?

Finally, participants were presented with a list of practical management techniques that can be used in beaver management strategies. The techniques presented were aligned with those presented in the '*Eurasian Beaver Management Handbook*'³⁹. From this list, participants could select multiple answers.

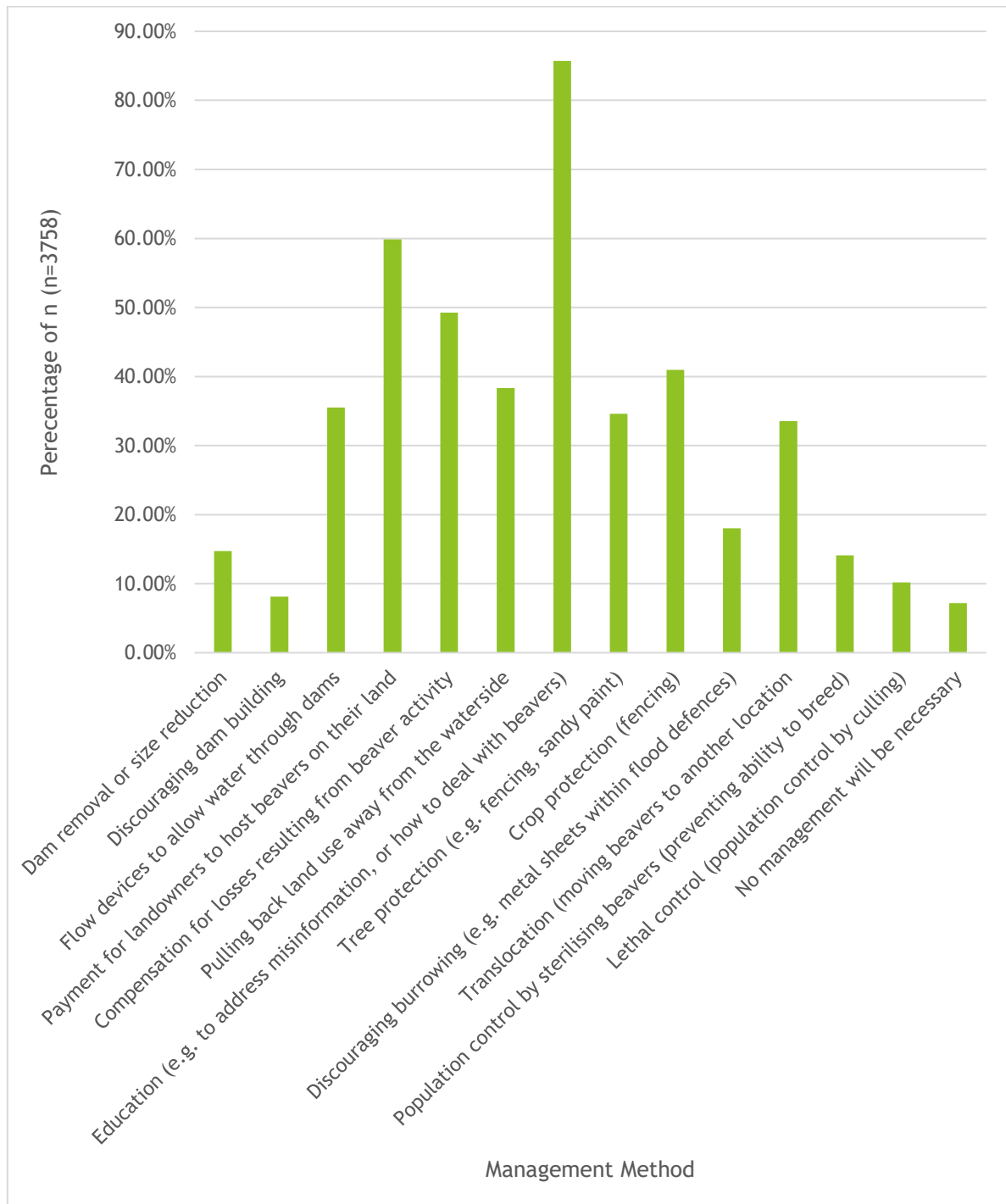
3758 respondents answered the question.

Of the methods presented, the most supported was 'Education (e.g. to address information, or how to deal with beavers)' with 85.71% of those who answered selecting this option. This was followed by 'Payment for landowners to host beavers on their land' (59.87%), then 'Compensation for losses resulting from beaver activity' (49.25%).

The least supported method was 'No management will be necessary', with only 7.18% of the total n in support. Second least supported was 'Discouraging dam building' (8.14%), then 'Lethal control (population control by culling)' (10.16%).

Figure 11 provides an overview of the management methods and the percentage of those who answered the question that indicated their support for each technique.

Figure 11. Overall levels of support for different management methods among this respondent pool.



In the 2017 survey of Britain, the same question was asked with the same three options ranking as the most selected. ‘No management will be necessary’ also received least support, and population control by culling was third least supported. However, the second least supported technique in the previous survey was ‘Population control by sterilising beavers’.

Relationship between support for management methods, and levels of support for beavers living wild in Wales

3746 respondents answered the question and indicated whether they support beavers living wild in Wales.

Table 22 demonstrates the percentage of each group that indicated their support for various management methods. The most three most highly selected in each group are highlighted in green, and the three least highly selected in red. (In ‘Undecided’, two methods ranked jointly as the third highest selected).

In all three groups, ‘compensation for losses resulting from beaver activity’ was ranked within the three most highly selected options, and ‘no management will be necessary’ ranked within the three least highly selected options.

Table 22. Percentage levels of support for different management techniques in relation to whether respondents support beavers living wild in Wales.

Management Method	Does respondent support beavers living wild in Wales?		
	Yes (n=3329)	No (n=245)	Undecided (n=172)
Dam removal or size reduction	11.26%	52.24%	27.33%
Discouraging dam building	5.68%	40.00%	9.88%
Flow devices to allow water through dams	34.67%	35.10%	50.00%
Payment for landowners to host beavers on their land	62.66%	28.16%	50.58%
Compensation for losses resulting from beaver activity	47.85%	63.27%	55.23%
Pulling back land use away from the waterside	41.06%	10.61%	25.00%
Education (e.g. to address misinformation, or how to deal with beavers)	91.08%	21.22%	75.00%
Tree protection (e.g. fencing, sandy paint)	32.89%	46.53%	50.58%
Crop protection (fencing)	40.31%	44.08%	48.26%
Discouraging burrowing (e.g. metal sheets within flood defences)	16.22%	38.37%	23.84%
Translocation (moving beavers to another location)	33.97%	26.94%	34.30%
Population control by sterilising beavers (preventing ability to breed)	10.84%	49.39%	27.33%
Lethal control (population control by culling)	4.51%	73.47%	28.49%
No management will be necessary	7.87%	2.04%	1.74%

The correlation between these variables was tested using a chi-square test of independence. It is important to note that multiple response questions such as this violate the assumptions of traditional Pearson chi-square tests, for the data is not mutually exclusive. However, this test can be used as an *approximate* test for marginal association. In this instance, the relationship **was** found to be statistically significant^{mm}.

^{mm} $\chi^2=2018.9$, $df=26$, $p<0.001$

3. REFLECTIONS

As outlined in [section iii](#), the authors are not involved in a beaver reintroduction project in Wales, nor are they decision-makers about the future of beavers in Wales. Hence, it is not within the authors' gift to determine what may or may not happen and their involvement will currently end upon submission of this report.

This report aims simply to provide an overview of the results to a nationwide public survey on individual perceptions of beavers in Wales in 2023. In this final section, the researchers share additional independently developed analytical reflections in response to the findings presented. Whether or how these are responded to in decision-making however is not for the researchers to determine.

Reflection 1 - Consistency: Results align with those of previous surveys

The results of this survey appear to be largely consistent with those of prior surveys. Previous studies throughout Great Britain have consistently demonstrated a majority in favour of beaver reintroductions among their respective respondent pools (with levels of support ranging between 63% and 95%), yet these surveys also usually identify particular groups which are less likely to be favourable ¹. This has been the case here, for groups such as those working in 'Farming & Agriculture' or 'Fisheries & Aquaculture' (and those who had heard about the survey from a farming or fishing organisation) exhibited more mixed viewpoints whilst being statistically less likely to support beavers living wild in Wales.

For the 'Farming & Agriculture' group, this may be reflective of the fact that those who benefit from beaver reintroduction may be different to those who would incur the costs in certain contextsⁿⁿ; those who supported beavers in Wales often cited what they perceived to be benefits that may arise from their activities (Table 16) whilst those who opposed to beavers in Wales often cited what they perceived as negative impacts or outcomes for humans, with comments often relating to negative outcomes people including landowners, farmers, or farming (Tables 18). The mixed views among 'Fisheries & Aquaculture' participants also remains consistent with studies from other contexts, where diverse perspectives exist among anglers or fishery communities. In those cases, perception among those who are more concerned often relates to questions about the relationship between beavers and fish (particularly migratory salmonids)^{oo 35,43}. On the more favourable end, and again similarly to other studies, those working in 'Environment, Nature & Wildlife' were statistically more likely to support beavers living wild in Wales,

ⁿⁿ See Brazier et al (2020) and Larsen et al (2021)^{1,41} for peer-reviewed literature reviews of beaver impacts.

^{oo} See Kemp et al (2012)⁴² for a peer-reviewed literature review of beaver-fish relationships.

perhaps related to views among supportive respondents that beaver reintroduction may be beneficial for habitats and biodiversity^{PP} (Table 16).

Further results also remain consistent with the prior survey of perceptions across Great Britain undertaken in 2017²². In both cases, participants exhibited a familiarity with beavers (although in some cases here more Welsh residents selected the correct answers to the multiple choice questions); there was an association between support or opposition to beaver reintroduction and the level of legal protection participants believed there should be if they were reintroduce (with those who were supportive tending to be associated with strong legal protection and those opposed tending to associate with no legal protection); and there was variance in the levels of support for management methods between those who supported and those who opposed reintroduction.

Reflection 2 - Risk: A binary 'yes or no' decision (or no decision) risks polarisation

The results of this survey have indicated that proposals for beavers to live wild in Wales is a politically sensitive matter, for there is polarisation between those who support or oppose beavers living wild in Wales. Whilst the question regarding support for reintroduction was itself binary, the polarisation in views is particularly highlighted through the contrasting viewpoints on whether beaver presence may lead to beneficial or negative outcomes for people and the environment in Wales (see Tables 16 to 18).

A decision to reintroduce therefore holds potential for conflict with those who are less supportive as they may feel that beaver *presence* has been imposed upon them - particularly among individuals who view themselves as someone who could be negatively affected by beavers or their activities. A decision *not* to reintroduce however also holds similar potential for tension, as individuals who view beaver presence as a positive may feel that continued beaver *absence* has been imposed, preventing what they view as the potential benefits from materialising. The nature of a binary decision within what has become a polarised discussion therefore incurs a risk of social tensions, regardless of which way the decision lands.

At present no decision has yet been taken on beavers living wild in Wales by Welsh Government, yet there are already tensions occurring. In the responses themselves there were many comments that exhibited frustration at other specified groups (sometimes with organisational or interest group names given), with individuals referring to feelings of beaver presence being imposed or blocked irrespective of feelings of opposition or support for it. Reasons given for a stance were also sometimes conflated with pre-existing tensions often unrelated to beavers, but which had either informed participant views on beavers or that were being borne out via the beaver discussion as a medium. (For example, there were many references towards: perceptions around osprey persecution; perceptions around

^{PP} See Stringer & Gaywood (2016)⁴⁴ for a peer-reviewed literature review of beaver impacts on biodiversity.

badgers and their management for *Tuberculosis*; or references to existing tensions between interest groups). There were also observable frustrations among some of those opposed about alleged illicit reintroductions that may have taken place without legal consent or what they would have perceived as a robust response. Anecdotally, in addition to the points exhibited in survey responses detailed above, the researchers received email correspondence during data collection from organisations or individuals with strong views to these effects. These are tensions which have thus developed in the absence of a specific decision on whether beavers should or should not live wild in Wales, highlighting that absence of a decision can also incur a risk of escalating social tensions.

Hence, a politically sensitive discussion has arisen. Whether beavers are to live wild in Wales is inherently binary in one sense as a decision will lead to beaver presence or absence (including through no decision). But if decision-making is only ever considered as a binary choice, consensus is unlikely and neither possible decision (nor indecision) will avoid the risk of tension completely. If dialogue is only concentrating on a 'yes or no', this is perhaps where there is greatest potential for further polarisation between contrasting viewpoints.

Reflection 3 - Moving beyond the binary: Providing opportunities for cross-party listening and dialogue

Decision-making will need sensitive handling to avoid tensions quickly escalating and becoming increasingly challenging to resolve^{45,46}. Whatever the next steps may be, it will be imperative that there is active effort to incorporate multiple, diverse perspectives into the decision-making process to minimise the escalation of human-human conflicts over beaver^{13,38,47}. There is limited scope to achieve this if a decision is only ever treated in a binary "yes or no" format, but there may be opportunities to establish fora that facilitate the sharing of knowledge and experience in a process of listening, resulting in improved long-term social outcomes.

As has been stressed, the researchers are not responsible for decision-making and there may be multiple approaches towards achieving this goal. Similarly, the researchers have only been involved in this survey and there may already be efforts by other parties to address this. To provide an example, however, one approach may be through the co-creation of a strategic approach or management framework, in a participatory process that brings together different voices, knowledge and experience. There was an observable willingness to engage in a process when participants were asked if they felt able to express their views in a manner that influences decision-makers; among those who felt that they could, the most frequently cited reasons regarded having knowledge or experience that they could contribute, or a sense that they may themselves be somebody who would experience the impacts of beavers.

There are existing examples of attempts at co-created processes. In Scotland, beavers were legally protected in 2019 and an initial management framework

implemented, but more recently a new beaver strategy document has been published for 2022 to 2045. This was developed in a process that drew together over 50 stakeholder organisations and was facilitated by an independent body, the International Union for Conservation of Nature (IUCN) Conservation Planning Specialist Group ¹¹. In another example, from England, during the River Otter Beaver Trial (prior to UK Government decision-making on legal protection and a national management approach), a cross-party working group was formed to develop proposals for a Beaver Management Strategy Framework ⁴⁸, which was cited by participating Steering Group stakeholders as one of the Trial successes ³⁸. Since, localised approaches continue to be discussed within ‘Beaver Management Groups’ that seek to provide fora for local communities and stakeholders ^{13,49}.

Of course, there is still risk attached. This would rely on the willingness of publics or stakeholders to participate, and if viewpoints are based on value-judgements it may be difficult to engage with others who hold different values, or alternatively there may be a lack of engagement if there is distrust of other parties or those facilitating dialogue ^{38,50-52}. Further, as human-wildlife conflict is often human-human conflict *about* wildlife management ^{22,53}, discussing potential management approaches may itself become a focal point for tension between those with differing views; the survey results did demonstrate divergences in levels of support for certain management techniques between groups with different stances on beavers living wild in Wales.

Any discussions will therefore require sensitive handling and good principles of wildlife governance ^{38,47}. It will require trust in the facilitators, who may need to be independent on this basis. Whilst it will be unlikely to avoid conflicts altogether, cross-party discussion is achievable where there is a willingness among participants from across a spectrum of viewpoints, a respect for different participant backgrounds and viewpoints, and an understanding that those who experience negative beaver impacts may not be the same as those who would garner benefit ^{13,38,38,47,53}. Ultimately however, recognition of how people interpret a situation can facilitate decisions which lead to more equitable outcomes ^{50,54}.

Finally, it should be noted that having a discussion of management or strategy may be distrusted by some who could perceive it as an implication of a decision having already been taken to reintroduce (regardless of whether it has been), and there may be an unwillingness to engage on this basis. Indeed, there were a small number of comments suggesting that even this survey implied a decision had been taken when respondents were being asked about beaver management in the hypothetical situation that beavers would be permitted to live wild in Wales (see Table 21). However, considering the social acceptability of management approaches from the earliest point possible may lead to better outcomes in future and, within this context, opportunities to listen and co-create strategy present themselves in scenarios both where beavers are actively reintroduced *and* when they are not, which could be discussed in parallel:

- If beavers are permitted to live wild in Wales, there would be benefit in bringing voices together to co-create a holistic management strategy that

provides appropriate and socially acceptable management support for those who may be negatively affected whilst also enabling benefits to accrue ¹.

- If a decision is taken to actively *not* reintroduce beavers, there remains opportunity to co-create proactive strategy/ies for responding to instances where beavers are identified to be living wild in Wales (whether from natural dispersal of beaver populations from across the border or in instances when source populations are unknown); there is likely to be a lower conflict potential when there is a proactive strategy than when there is a reactive approach, or an absence of management strategy ^{13,36,55}.

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