WSP closed question analysis

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WSP - Analysis, stats and visualisations for closed questions

This rMarkdown explores and analyses the closed

About rMarkdowns

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Sectioned analysis (in order found in questionnaire)

Respondent knowledge

Respondent knowledge questions have yes/no/notsure or incorrect/correct answer formats, lending themselves to Likert or Stacked bar plot style plots. Below I have created some initial plots, seperated according to sample type and started calculating sample sizes per question to create a tableto display the sample sizes per column, per survey type.

Some useful Likert plotting guides and packages: * https://cran.r-project.org/web/packages/sjPlot/vignettes/plot_likert_scales.html (https://cran.r-project.org/web/packages/sjPlot/vignettes/plot_likert_scales.html) * https://towardsdatascience.com/how-to-plot-likert-scales-with-a-weighted-survey-in-a-dplyr-friendly-way-68df600881a (https://towardsdatascience.com/how-to-plot-likert-scales-with-a-weighted-survey-in-a-dplyr-friendly-way-68df600881a) * https://www.r-graph-gallery.com/202-barplot-for-likert-type-items.html (https://www.r-graph-gallery.com/202-barplot-for-likert-type-items.html)

```
### Calculating sample sizes for knowledge questions table

# Selecting image of WS
final_data %>%
  dplyr::select(SurveyType, Q2_photo_recog_score, Q2_photo_recog) %>%
  dplyr::group_by(SurveyType, Q2_photo_recog) %>%
  summarise(n = n()) %>%
  mutate(Percent = (n / sum(n)*100))
```

```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

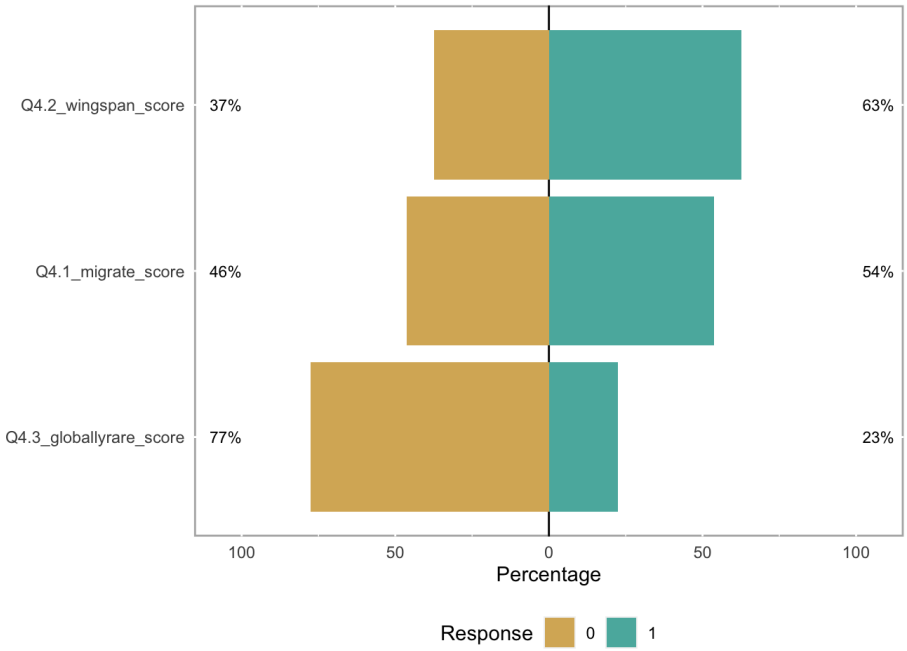
```
## # A tibble: 12 x 4
## # Groups:   SurveyType [2]
##    SurveyType Q2_photo_recog     n Percent
##    <fct>      <fct>          <int>   <dbl>
##  1 NatRep     A                 19  1.66
##  2 NatRep     B                407 35.6
##  3 NatRep     C                 12  1.05
##  4 NatRep     D                567 49.6
##  5 NatRep     Don't know       133 11.6
##  6 NatRep     E                  5  0.437
##  7 Proactive  A                 16  0.670
##  8 Proactive  B               2124 88.9
##  9 Proactive  C                  6  0.251
## 10 Proactive  D                171  7.16
## 11 Proactive  Don't know        69  2.89
## 12 Proactive  E                  2  0.0838
```

```
##  Factor w/ 3 levels "No","Not sure",..: 1 2 3 3 3 3 3 3 2 3 ...
```

```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

```
## # A tibble: 6 x 4
## # Groups:   SurveyType [2]
##   SurveyType Q3_is_native     n Percent
##   <fct>      <fct>        <int>   <dbl>
## 1 NatRep     No             219    19.2
## 2 NatRep     Not sure       711    62.2
## 3 NatRep     Yes            213    18.6
## 4 Proactive  No             344    14.4
## 5 Proactive  Not sure       682    28.6
## 6 Proactive  Yes           1362    57.0
```

```
## Warning: `funs()` was deprecated in dplyr 0.8.0.
## Please use a list of either functions or lambdas:
##
##   # Simple named list:
##   list(mean = mean, median = median)
##
##   # Auto named with `tibble::lst()`:
##   tibble::lst(mean, median)
##
##   # Using lambdas
##   list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))
```




```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

```
## # A tibble: 6 x 4
## # Groups:   SurveyType [2]
##   SurveyType Q4.1_migrate     n Percent
##   <fct>      <fct>        <int>   <dbl>
## 1 NatRep     Don't know     642   56.2
## 2 NatRep     FALSE           38    3.32
## 3 NatRep     TRUE           463   40.5
## 4 Proactive  Don't know     861   36.1
## 5 Proactive  FALSE           93    3.89
## 6 Proactive  TRUE          1434   60.1
```

```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

```
## # A tibble: 6 x 4
## # Groups:   SurveyType [2]
##   SurveyType Q4.2_wingspan     n Percent
##   <fct>      <fct>         <int>   <dbl>
## 1 NatRep     Don't know      543   47.5
## 2 NatRep     FALSE            73    6.39
## 3 NatRep     TRUE            527   46.1
## 4 Proactive  Don't know      618   25.9
## 5 Proactive  FALSE            82    3.43
## 6 Proactive  TRUE           1688   70.7
```

```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

```
## # A tibble: 6 x 4
## # Groups:   SurveyType [2]
##   SurveyType Q4.3_globallyrare     n Percent
##   <fct>      <fct>             <int>   <dbl>
## 1 NatRep     Don't know          594   52.0
## 2 NatRep     FALSE                99    8.66
## 3 NatRep     TRUE                450   39.4
## 4 Proactive  Don't know         1036   43.4
## 5 Proactive  FALSE               697   29.2
## 6 Proactive  TRUE                655   27.4
```

```
##   [1] "X.1"
##   [2] "X"
##   [3] "SurveyType"
##   [4] "UniqueID_long"
##   [5] "UniqueID_short"
##   [6] "UniqueID_all"
##   [7] "TimeTaken"
##   [8] "StartDate"
##   [9] "StartTime"
##  [10] "CompletionDate"
##  [11] "CompletionTime"
##  [12] "Q1_aware_stork"
##  [13] "Q2_photo_recog"
##  [14] "Q2_photo_recog_score"
##  [15] "Q3_is_native"
##  [16] "Q3_is_native_explain"
##  [17] "Q4.1_migrate"
##  [18] "Q4.1_migrate_score"
##  [19] "Q4.2_wingspan"
##  [20] "Q4.2_wingspan_score"
##  [21] "Q4.3_globallyrare"
##  [22] "Q4.3_globallyrare_score"
##  [23] "Q4_overallscore"
##  [24] "Q5a_amphibians_diet"
##  [25] "Q5b_birdeggs.chicks_diet"
##  [26] "Q5c_carrion_diet"
##  [27] "Q5d_fish_diet"
##  [28] "Q5e_foodwaste_diet"
##  [29] "Q5f_fruit_diet"
##  [30] "Q5g_inverts_diet"
##  [31] "Q5h_reptiles_diet"
##  [32] "Q5i_seeds_diet"
##  [33] "Q5j_smallmammals_diet"
##  [34] "Q5k_vegetation_diet"
##  [35] "Q5l_Don.tKnow_diet"
##  [36] "Q5_rawscore_diet"
##  [37] "Q5_diet_overallscore"
##  [38] "Q6a_farmland_habitat"
##  [39] "Q6b_grassland_habitat"
##  [40] "Q6c_wetlands_habitat"
##  [41] "Q6d_woodland_habitat"
##  [42] "Q6e_urban_habitat"
##  [43] "Q6f_Don.tKnow_habitat"
##  [44] "Q6_habitat_rawscore"
##  [45] "Q6_habitat_overallscore"
##  [46] "Q7a_chimneys_nesting"
##  [47] "Q7b_ground_nesting"
##  [48] "Q7c_roofs_nesting"
##  [49] "Q7d_telegraphpoles_nesting"
##  [50] "Q7e_trees_nesting"
##  [51] "Q7f_Don.tKnow_nesting"
##  [52] "Q7_nesting_rawscore"
##  [53] "Q7_nesting_overallscore"
##  [54] "KnowledgeScore"
##  [55] "Q8_wild_seen"
##  [56] "Q8_captivity_seen"
##  [57] "Q8_pictures_video"
##  [58] "Q8_No"
##  [59] "Q8_NotSure"
##  [60] "Q8.1_UK"
##  [61] "Q8.1_OutsideUK"
##  [62] "Q8.WhereSeen"
##  [63] "Q8.2_feelings"
##  [64] "Q9_heard"
##  [65] "Q9a_what_heard"
##  [66] "Q10_project_knowledge"
##  [67] "Q10a_WSPwebsite"
##  [68] "Q10a_Socialmedia"
##  [69] "Q10a_TV.Radio"
##  [70] "Q10a_Newspaper"
##  [71] "Q10a_Email"
##  [72] "Q10a_Magazine"
##  [73] "Q10a_Leaflet"
##  [74] "Q10a_spokesperson"
##  [75] "Q10a_VisitingKnepp"
##  [76] "Q10a_Wordofmouth"
##  [77] "Q10a_Other"
##  [78] "Q10a_Other_open"
##  [79] "Q10b_WSPwebsite"
##  [80] "Q10b_Socialmedia"
##  [81] "Q10b_TV.Radio"
##  [82] "Q10b_Newspaper"
##  [83] "Q10b_Email"
##  [84] "Q10b_Magazine"
##  [85] "Q10b_Leaflet"
##  [86] "Q10b_spokesperson"
##  [87] "Q10b_NotInterested"
##  [88] "Q10b_Other"
```

```
##  [89] "Q10b_Other_open"
##  [90] "Q11_word1"
##  [91] "Q11_word2"
##  [92] "Q11_word3"
##  [93] "Q12.1..White.storks.symbolise.the.beauty.of.nature."
##  [94] "Q12.1_agreement_score"
##  [95] "Q12.2..White.storks.play.an.important.role.in.their.environment."
##  [96] "Q12.2_agreement_score"
##  [97] "Q12.3..Reintroduced.white.storks.may.have.a.negative.impact.on.my.life."
##  [98] "Q12.3_agreement_score"
##  [99] "Q12.4..I.do.not.want.white.storks.living.near.me."
## [100] "Q12.4_agreement_score"
## [101] "Q12.5..White.storks.in.England.could.benefit.the.tourism.industry.where.they.re.found."
## [102] "Q12.5_agreement_score"
## [103] "Q13.1..I.would.find.it.exciting.to.see.white.storks.in.the.wild.in.England."
## [104] "Q13.1_agreement_score"
## [105] "Q13.2..White.storks.symbolise.hope..rebirth.and.new.life."
## [106] "Q13.2_agreement_score"
## [107] "Q13.3..Money.spent.reintroducing.white.storks.would.be.better.spent.elsewhere."
## [108] "Q13.3_agreement_score"
## [109] "Q13.4..White.storks.might.be.detrimental.to.local.wildlife."
## [110] "Q13.4_agreement_score"
## [111] "Q13.5..There.is.no.need.to.reintroduce.the.white.stork.to.England.as.it.is.a.common.species.throughout.
mainland.Europe."
## [112] "Q13.5_agreement_score"
## [113] "Q14.1..I.think.white.storks.are.useless.birds."
## [114] "Q14.1_agreement_score"
## [115] "Q14.2..White.storks.are.part.of.our.cultural.and.natural.heritage."
## [116] "Q14.2_agreement_score"
## [117] "Q14.3..The.reintroduced.white.stork.can.help.people..re.connect.with.the.natural.world."
## [118] "Q14.3_agreement_score"
## [119] "Q14.4..The.countryside.will.be.worse.off.with.white.storks.around."
## [120] "Q14.4_agreement_score"
## [121] "OverallAttitudeScore"
## [122] "Q14.5..Overall..I.support.efforts.that.aim.to.reintroduce.the.UK.s.lost.species.and.restore.its.natura
l.systems."
## [123] "Q14.5_agreement_score"
## [124] "Q15_WSP_support"
## [125] "Q15_WSP_support_open"
## [126] "Q16_views_management"
## [127] "Q16_views_management_open"
## [128] "Q17.1_Nest_monitoring"
## [129] "Q17.2_Nesting_platforms"
## [130] "Q17.3_Discouragenestbuilding"
## [131] "Q17.4_Nest_removal"
## [132] "Q17.5_Tracking"
## [133] "Q17.6_Public_engagement"
## [134] "Q17.7_Supplementary_food"
## [135] "Q17.8_compensation_storkdamage"
## [136] "Q17.9_Stork_relocation"
## [137] "Q17.10_Culling"
## [138] "Q17_11.management.not.needed"
## [139] "Q17.12_Don.tknow"
## [140] "Q17.13_other"
## [141] "Q17.13a_other_open"
## [142] "Q18_exp_nature"
## [143] "Q18a_dogwalking"
## [144] "Q18a_walking"
## [145] "Q18a_running.cycling"
## [146] "Q18a.golf"
## [147] "Q18a.picnic"
## [148] "Q18a.horse.riding"
## [149] "Q18a.bird.wildlife.watching"
## [150] "Q18a.photography"
## [151] "Q18a.camping"
## [152] "Q18a.fishing"
## [153] "Q18a.shooting.hunting"
## [154] "Q18a.water.sports.swimming"
## [155] "Q18a.gardening"
## [156] "Q18a.don.t.spend.free.time.in.green.natural.spaces"
## [157] "Q18a_other"
## [158] "Q18a_other_open"
## [159] "Q19.1..I.find.being.in.nature.really.amazing"
## [160] "Q19.1.score"
## [161] "Q19.2..Spending.time.in.nature.is.very.important.to.me"
## [162] "Q19.2.score"
## [163] "Q19.3..Being.in.nature.makes.me.very.happy"
## [164] "Q19.3.score"
## [165] "Q19.4..I.always.find.beauty.in.nature"
## [166] "Q19.4.score"
## [167] "Q19.5..I.always.treat.nature.with.respect"
## [168] "Q19.5.score"
## [169] "Q19.6..I.feel.part.of.nature"
## [170] "Q19.6.score"
## [171] "NCI"
## [172] "Q20.1..Damage.to.the.natural.environment"
## [173] "Q20.2..The.consequences.of.a.loss.of.variety.of.wildlife"
## [174] "EnvConcern.score"
```

```
## [175] "Q21.1..When.I.see.litter..I.pick.it.up"
## [176] "Q21.1.score"
## [177] "Q21.2..I.vote.for.nature.or.wildlife.conservation.friendly.legislation.in.local.or.national.referendum
s.votes.etc."
## [178] "Q21.2.score"
## [179] "Q21.3..I.get.in.touch.with.local.authorities.on.nature.conservation.issues"
## [180] "Q21.3.score"
## [181] "Q21.4..I.vote.for.parties..candidates.with.strong.pro.nature.conservation.policies.in.elections"
## [182] "Q21.4.score"
## [183] "ProCoBS"
## [184] "Q22....Are.you.a.member.of.any.environmental..wildlife.or.conservation.organisations."
## [185] "Q22.a..Which.ones...Optional.."
## [186] "Q23.1..I.pay.attention.to.birds.wherever.I.go."
## [187] "Q23.1..Score"
## [188] "Q23.2..I.can.identify.common.birds.in.my.area."
## [189] "Q23.2.Score"
## [190] "Q23.3..Seeing.a.new.bird.fills.me.with.excitement."
## [191] "Q23.3.Score"
## [192] "Q23.4..I.am.not.interested.in.birds."
## [193] "Q24.4.score"
## [194] "BirdInterestScore"
## [195] "Age_group"
## [196] "Gender"
## [197] "Gender_other"
## [198] "Region"
## [199] "County"
## [200] "Area_type"
## [201] "Postcode"
## [202] "ReleaseSite"
## [203] "SiteProximity"
## [204] "Q27_Knepp_visit"
## [205] "Q27.a_Knepp_activity"
## [206] "Q27.a_Knepp_activity_other"
## [207] "Education"
## [208] "Education_other"
## [209] "Occupation"
## [210] "Occupation_other"
## [211] "Q30_Press"
## [212] "Q30_TV.Radio"
## [213] "Q30_Facebook"
## [214] "Q30_Twitter"
## [215] "Q30_Social_media"
## [216] "Q30_Durrell.WSP"
## [217] "Q30_Other_wildlife.nature.org."
## [218] "Q30_Farming_org."
## [219] "Q30_Business_org."
## [220] "Q30_Tourism_org."
## [221] "Q30_Local_council"
## [222] "Q30_Friend.family"
## [223] "Q30_Researcher"
## [224] "Q30_other"
## [225] "Q30.a_Other_open"
## [226] "Q31_comments"
## [227] "Age_group_match"
## [228] "SecsTaken"
```

```
## `summarise()` has grouped output by 'SurveyType', 'Diet'. You can override using the `.groups` argument.
```

```
## # A tibble: 24 x 5
## # Groups:   SurveyType, Diet [24]
##    SurveyType Diet                     Answer  count percent
##    <fct>      <chr>                    <chr>   <int>   <dbl>
##  1 NatRep     Q5a_amphibians_diet      Correct   230   20.1
##  2 NatRep     Q5b_birdeggs.chicks_diet Correct   142   12.4
##  3 NatRep     Q5c_carrion_diet         Correct    64    5.60
##  4 NatRep     Q5d_fish_diet            Correct   661   57.8
##  5 NatRep     Q5e_foodwaste_diet       Correct    67    5.86
##  6 NatRep     Q5f_fruit_diet           Correct    52    4.55
##  7 NatRep     Q5g_inverts_diet         Correct   260   22.7
##  8 NatRep     Q5h_reptiles_diet        Correct   139   12.2
##  9 NatRep     Q5i_seeds_diet           Correct    82    7.17
## 10 NatRep     Q5j_smallmammals_diet    Correct   143   12.5
## # … with 14 more rows
```

```
## [1] 0 0 1 0 1 0
```

```
## `summarise()` has grouped output by 'SurveyType', 'Habitat'. You can override using the `.groups` argument.
```

```
## # A tibble: 12 x 5
## # Groups:   SurveyType, Habitat [12]
##    SurveyType Habitat               Answer count percent
##    <fct>      <chr>                 <chr>  <int>   <dbl>
##  1 NatRep     Q6a_farmland_habitat  Yes      109    9.54
##  2 NatRep     Q6b_grassland_habitat Yes      199   17.4
##  3 NatRep     Q6c_wetlands_habitat  Yes      672   58.8
##  4 NatRep     Q6d_woodland_habitat  Yes       74    6.47
##  5 NatRep     Q6e_urban_habitat     Yes       23    2.01
##  6 NatRep     Q6f_Don.tKnow_habitat Yes      342   29.9
##  7 Proactive  Q6a_farmland_habitat  Yes      716   30.0
##  8 Proactive  Q6b_grassland_habitat Yes     1176   49.2
##  9 Proactive  Q6c_wetlands_habitat  Yes     1700   71.2
## 10 Proactive  Q6d_woodland_habitat  Yes      211    8.84
## 11 Proactive  Q6e_urban_habitat     Yes       85    3.56
## 12 Proactive  Q6f_Don.tKnow_habitat Yes      363   15.2
```

```
## `summarise()` has grouped output by 'SurveyType', 'Nest'. You can override using the `.groups` argument.
```

```
## # A tibble: 12 x 5
## # Groups:   SurveyType, Nest [12]
##    SurveyType Nest                      Answer count percent
##    <fct>      <chr>                     <chr>  <int>   <dbl>
##  1 NatRep     Q7a_chimneys_nesting      Yes      173   15.1
##  2 NatRep     Q7b_ground_nesting        Yes      249   21.8
##  3 NatRep     Q7c_roofs_nesting         Yes      208   18.2
##  4 NatRep     Q7d_telegraphpoles_nesting Yes      106    9.27
##  5 NatRep     Q7e_trees_nesting         Yes      299   26.2
##  6 NatRep     Q7f_Don.tKnow_nesting     Yes      449   39.3
##  7 Proactive  Q7a_chimneys_nesting      Yes     1258   52.7
##  8 Proactive  Q7b_ground_nesting        Yes      114    4.77
##  9 Proactive  Q7c_roofs_nesting         Yes     1261   52.8
## 10 Proactive  Q7d_telegraphpoles_nesting Yes      986   41.3
## 11 Proactive  Q7e_trees_nesting         Yes     1801   75.4
## 12 Proactive  Q7f_Don.tKnow_nesting     Yes      200    8.38
```

Exploring perceptions questions

```
##  Factor w/ 3 levels "Both","OutsideUK",..: NA 2 2 2 1 NA NA 2 NA 2 ...
```

```
## `summarise()` has grouped output by 'SurveyType'. You can override using the `.groups` argument.
```

```
## # A tibble: 8 x 4
## # Groups:   SurveyType [2]
##   SurveyType Q8.WhereSeen     n Percent
##   <fct>      <fct>        <int>   <dbl>
## 1 NatRep     Both            10   0.875
## 2 NatRep     OutsideUK       92   8.05
## 3 NatRep     UK              54   4.72
## 4 NatRep     <NA>           987  86.4
## 5 Proactive  Both           289  12.1
## 6 Proactive  OutsideUK      579  24.2
## 7 Proactive  UK             418  17.5
## 8 Proactive  <NA>          1102  46.1
```

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