The effects of biodiversity and natural environment on satisfaction

by

Lauren Hepburn

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Lauren Hepburn

Abstract

This project focused on how the nature in city neighbourhoods influences the satisfaction of residents. Residents of Ottawa (n=1035) were surveyed about their life satisfaction and their thoughts of the environment surrounding their homes. The survey responses were compared to nature near their homes, including bird diversity, tree canopy cover, and distance to water. Neighbourhood satisfaction was positively related to bird species richness, even before participants were prompted to consider nature. In addition, satisfaction with the local nature increased with bird species richness and tree canopy cover. The quality rating of local nature in comparison to other areas increased with tree canopy cover and nearness to water. Nature was considered more important when choosing where to live for participants living in neighborhoods with high tree canopy cover and close to water. The results create a compelling argument for city planners to maintain urban nature.

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1. Introduction

There is growing evidence that exposure to nature has positive effects on human well-being (Sandifer et al., 2015). Nature has been related to a broad variety of wellness traits, such as improved mood, increased cognitive function, and overall general health (Park et al., 2011; Berman et al., 2008; de Vries et al., 2003). A seminal study by Fuller et al. (2007) found that psychological well-being, such as reflection, distinct identity and place attachment of people who visited a community garden was related to plant and bird species richness. Dallimer et al. (2012) used a similar methodology and found positive effects of bird diversity, but negative effects of plant diversity, indicating that patterns are not clear and need further study. More specifically, nature has also been found to be related to the happiness of people (Nisbet et al., 2011; Mackerron & Mourato, 2013). While well-being can refer to any positive condition; psychologists typically describe the specific concept of happiness using one or more indicators of well-being. Subjective well-being is a construct commonly used to describe happiness based on cognitive evaluations on a person's overall life satisfaction, satisfaction with different facets of their life, and positive emotional balance (Diener, 2000). Mackerron & Mourato (2013) surveyed people through a phone app in the United Kingdom about their happiness and related that to measures of nature based on their geolocation. They found that people outside in natural environments at the time of the survey had significantly higher experienced subjective well-being at the time of the survey. Nisbet et al. (2009) introduced the concept of nature relatedness, which measures the connection between an individual and nature. People who spend more time outdoors in nature demonstrate higher nature relatedness, as well as more pro-environmental behaviours (Nisbet et al.,

2009). Individuals with higher nature relatedness were found to have higher well-being (Nisbet et al., 2011).

There is concern that people who live in cities are becoming disconnected from nature and that this may negatively impact their well-being (Kellert & Wilson, 1993). Investigating the relationship between well-being and biodiversity is a time sensitive issue due to rapid urbanization. Urban areas are associated with lower biodiversity than rural areas, especially in extreme cases such as downtown cores (McKinney, 2008). It is estimated that 55% of the world's population currently lives in urban areas and that number is expected to increase to 68% by 2050 (United Nations, 2018) indicating that determining the effects of nature on urban dwellers is a pressing concern.

Many studies that attempt to measure the effect of nature on humans focus on greenspaces, such as urban parks and gardens (Fuller et al., 2007; Park et al., 2011; Dallimer et al., 2013; Carrus et al., 2014). This could lead to a biased sample, as people who feel less connected to nature may be less likely to visit a park and would be under-represented in the study. There is considerably less focus on the role of nature that is not dedicated to recreation, such as tree-lined streets in residential neighbourhoods. Kardan et al. (2015) found that people with higher tree canopy cover in their neighbourhoods had fewer reported health problems and higher perceived health. This suggests that not only large greenspaces are of importance to well-being and that biodiversity outside of parks should be considered.

The focus of my study was on determining if a positive affiliation towards local nature was present in residents in urban and suburban areas. I tested the relationship between local environment and a person's happiness by surveying people and comparing

their responses to measures of nature near their homes. The survey measured happiness using questions about life satisfaction and satisfaction with their neighbourhoods (Diener, 2000). Additionally, the survey included context questions about their perceptions of their local nature and their relationship with nature. The nature predictor variables were bird abundance, bird species richness (i.e. number of bird species), tree canopy cover (ha), and distance to water (km). I visited 100 sites spread across the residential Ottawa area that had varying measures of each of the predictor variables. I predicted that people living in areas with higher measures of nature (i.e. higher bird abundance and species richness, higher tree canopy cover, and smaller distance to water) would have more positive responses to the survey questions.

2. Methods

2.1 Overview

I surveyed residents in Ottawa about their life satisfaction and their thoughts about their local environment and related the survey results to independent data on the natural environment near the participants' residences. Participants were not told in advance that this study was about nature, to avoid biasing their answers to early questions about their overall satisfaction and neighbourhood satisfaction. Participant responses were compared to measures of nature around their homes while controlling for the potentially confounding variable of income. I used four measures of nature which included: 1) bird abundance, 2) bird species richness, 3) tree canopy cover and 4) distance to water. Distance to water was added as a variable *post hoc* as many participants explicitly mentioned the importance of being near to water in responses to questions about the natural environment of their neighbourhoods. I selected 100, 250m

radius sites across the residential parts of Ottawa, Canada (Figure 1). These sites were centred around pre-existing bird count locations (75m radius each) from the Ottawa Bird Count (www.ottawabirds.ca).

2.2 Survey

The survey contained eight questions (Table 1). It was designed so that questions started broad and gradually became more specific. The first question asked about the participant's disposition, similar to the subjective happiness scale (Lyubomirsky & Lepper, 1999). This study treats disposition as being a personal character trait inherent of the participant. It is used as both a response variable and as a predictor for other questions. Questions two through four were about life satisfaction and were adapted from the World Values Survey (Diener et al., 1985; Inglehart et al., 2014). This study treats life satisfaction as distinct from disposition and includes the participant's circumstances in addition to their inherent character. Questions five and six focused on how conscious the participants were of the nature around them. The goal of these questions was to determine how they perceived the environment and whether or not they made a deliberate choice to live near nature. Questions seven and eight were adapted from the Nature Relatedness Scale (Nisbet et al., 2009). These questions determined the participant's relationship and connectivity to nature. Carleton University Research Ethics Board approved all methods and survey questions (Project # 106476).

I created the survey using the software Qualtrics™ (Qualtrics, 2017), which hosted the survey on its platform. For in-person surveying, the participants used a tablet to read and submit their answers. To increase sample size, flyers were left at residences inviting the occupants to participate online if they were not available for an in-person

survey. Participants were asked if they would be willing to participate in a study on “resident life satisfaction”. I intentionally did not mention the environment until later in the survey as I did not want to bias their responses to the questions about general satisfaction with life and with their neighbourhood. Those who answered affirmatively were given consent information to review. Once participants electronically submitted their consent, each participant was assigned a unique User ID. This ID was coded to the participant’s location so that the variables around their residence - bird abundance and richness, tree canopy cover, distance to water, and median income - could be measured. The survey then began. The survey showed one question at a time and participants were not able to change their answers after they were given. Again, this was to avoid the later mention of the environment having an influence on participants' answers to questions about general satisfaction with life and with their neighbourhood. After the last question, participants were shown debriefing information describing the purpose of the study and asked to reaffirm their consent. Participants were given the option to withdraw from the survey, even after completion, however no participants chose this option.

I surveyed people door-to-door, visiting all study sites between May and August, 2017. In-person surveying took place Monday through Friday (excluding holidays) between 9:30am and 4:30pm. For each 250m radius site, sampling continued until either 10 surveys had been achieved or until there were no more residential addresses to visit within the site. If a site could not be completed, it was revisited at the end of the sampling period. Residences were prioritized for sampling based on how close they were to the bird point. Residences within the 75m radius were highest priority, followed by those within 150m, and lastly within 250m. The study period was chosen to bracket the mean

leaf out and leaf senescence dates as recorded at the Ottawa Arboretum (Panchen et al., 2014; Panchen et al., 2015). This was done so that the tree canopy cover would be consistent throughout the field season. The final online survey was collected October 1, 2017.

2.3 Site Selection

I selected 100 survey sites, from among the 928 Ottawa Bird Count locations distributed across Ottawa, to represent gradients of my predictor variables: bird abundance and richness, tree cover, distance to water, and median income (Figure 1). The sites were centred around the pre-existing bird count locations from the Ottawa Bird Count program and had a radius of 250m from the centres of the bird count locations. Sites with fewer than 10 residential properties were excluded due to low potential sample size. The centroid co-ordinates of each residential property were determined by publicly available data (City of Ottawa, 2017). Any potential sites that had missing or incomplete data for any of the predictor variables were excluded from consideration. This left a total of 221 candidate sites of the 928 Ottawa Bird Count sites. Sites that were overlapping at the 250m radius extent were eliminated one by one, keeping sites that had the lowest correlation between predictor variables and favouring more evenly distributed sites across the study area. To ensure a relatively low correlation between tree canopy cover and median income, I categorized candidate sites based on whether they were above or below the median value of income or tree canopy cover (e.g., high or low tree cover). A roughly even number of sites of each combination were included (29 high median income-high tree canopy cover, 20 high median income-low tree canopy cover, 24 low median income-high tree canopy cover, and 27 low median income-low tree canopy cover).

However, a perfectly balanced sample could not be obtained because some combinations are relatively rare (e.g., high income and low canopy cover).

2.4 Sampling Order

I determined the order to visit sites using a structured framework to make sure that there was no relationship between season and any of the predictor variables. I did this because seasonality has been shown to affect people's moods (Murray, 2003) and mood can affect subjective well-being (Diener, 2000). To spatially distribute my sampling, I divided the study area into quadrants (Figure 1). Sampling started in the western quadrant and changed every day moving clockwise. I chose the order of sites by their median income and tree canopy cover values. Each day I sampled two sites in the same category of median income level, switching daily from high median income to low then reversing the pattern each cycle around the quadrants. Each day one high tree canopy cover area site was paired with one low tree canopy cover area until all possible pairs were exhausted. This approach successfully avoided any seasonal pattern in the predictor variables of the sampled sites (Figure A in Appendix).

2.5 Bird Data

The bird data I used for this project were provided by the Ottawa Bird Count. This is a breeding season monitoring program for birds that takes place within the city of Ottawa, Canada. Volunteers make bird observations between half an hour before sunrise and 8:00am at designated locations across the city, by taking 10-minute, 75m fixed-radius point counts, during peak breeding season (June 3 to July 7). The bird count locations are randomly distributed across the Ottawa region in publicly accessible locations. I used the

most recent measure of bird abundance and species richness at each site. This measure includes only birds that were observed using the space in the site, excluding birds flying far overhead. The bird data was collected at the 75m radius center of each 250m radius survey site (Table A in Appendix).

2.6 Tree Canopy Cover

The map of tree canopy cover was provided by the City of Ottawa. It was created using Stereo Compilation of 6-cm aerial photography. The map is updated by the city every 2 to 3 years, most recently November 2015. During the survey period, field assistants updated the tree canopy cover data for each site by comparing the map data to trees present at the site and noting any discrepancies. I updated the map in ArcGIS version 10.5.1 (ESRI, 2018) before analysis. For site selection, I calculated the total amount of tree canopy cover within a 250m radius of the centre of each site. For analysis, I calculated the surrounding tree canopy cover within a 250m radius for each individual survey, centred around the participant's location (Table A in Appendix).

2.7 Distance to Water

In response to questions 4, 5 and 6 of the survey, many participants said that being close to the water was one of the key features that they enjoyed about their neighbourhood. To reflect this, I included distance to water as a predictor variable in the models. The map of waterbodies was from the city of Ottawa, last updated April 2018. The map is derived from an Ontario Base Map created using aerial imagery at a scale of 1:10,000. I calculated the Euclidean distance from each participant's location to the nearest major waterbody (Table A in Appendix).

2.8 Median Income

Previous studies have indicated that higher relative income has a positive effect on a person's life satisfaction (Clark et al., 2008). As well, property values tend to increase with greater neighbourhood tree canopy cover (Sanders et al., 2010). Therefore, it is expected that income may be correlated to both life satisfaction and tree canopy cover. I therefore included median income as a variable in my site selection and data analysis to control for this potentially confounding effect.

I used income data from the Canadian National Household Survey (Statistics Canada, 2013) from the Canadian Census of 2011. Median individual yearly income was treated as an indicator of the area's relative wealth. For broad scale site selection, I assigned each site the median income of the Census Tract (area representing a population of approximately 2500 to 8000) within which it was located. For analysis, I assigned each participant's location the median income of the Dissemination Area (area representing a population of approximately 400 to 700), i.e., the smallest possible Census division (Table A in Appendix).

2.9 Data Analysis

The responses to each survey question were analysed with a hierarchical Bayesian, ordered probit mixed model using the software R version 3.4.3 (R Core Team, 2018), and the package MCMCglmm (Hadfield, 2010). Site was treated as a random effect, to control for the non-independence of survey responses within sites, while all other variables were fixed effects. Bird abundance and species richness were highly correlated ($r = 0.736$), so models for each measure were run separately. I ran two formats

of models, one that included disposition (from question 1) as a predictor for questions 2-8 and one that did not. A person's disposition is expected to influence their subjective well-being (Kozma et al., 2000) and might be a better predictor of a participant's answers than their local environment. Disposition was an ordinal variable, so in the models a series of orthogonal polynomials were fit up to the sixth power ($k-1$, where k was the number of response levels in question 1). This is a conservative approach as it reduces the amount of variation available for the nature predictors (bird abundance/richness, tree canopy cover, and distance to water) to explain.

So the final model for each response, including disposition, was as follows:

$$Survey_{ij} = (\beta_0 + Site_j) + \beta_1 Bird_{ij} + \beta_2 Tree_{ij} + \beta_3 Water_{ij} + \beta_4 Income_{ij} + \beta_5 Disposition_{1-6ij} + e_j$$

where *Survey* is the response of the i -th participant of the j -th site level to survey a question, *Site* is the site number, *Bird* is either bird abundance or species richness, *Tree* is tree canopy cover within a 250m radius in hectares, *Water* is the Euclidean distance to the nearest waterbody in kilometers, *Income* is the median income of the dissemination area, and *Disposition₁₋₆* represent a matrix of the 6th-degree, orthogonal polynomial contrasts of a participant's disposition (taken from question 1).

I ran models using vague priors, with residual variance fixed at 1. I used a burn in of 60,000, a thinning factor of 30, and 360,000 total iterations. I tested convergence using a Gelman-Rubin diagnostic, which assesses convergence by comparing multiple Markov chains. The Gelman-Rubin diagnostic compares the estimated within-chain and between-chains variances for each model parameter, with large differences between these variances indicating nonconvergence (Gelman & Rubin, 1992). A total of 4 chains for each model were run and the multivariate potential scale reduction factor was less than

1.1 (indicating convergence by the Gelman-Rubin diagnostic). The postMCMCglmm R package (Wiley, 2013) was used to predict the probability of each participant answering the most positive option for questions. For each plot, all values were held constant in the model at their mean (median for disposition) except for the predictor of interest (Table B in Appendix).

3. Results

3.1 Overview

A total of 1035 surveys were collected (886 in-person, 149 from flyers) (Table B in Appendix). The overall response rate was 16.7% (64.7% in-person, 3% from flyer). The responses for every question were skewed, so that most responses were from the more positive options (Figure B in Appendix). There was a moderate correlation between response rate per site and median income ($r = 0.358$), and there were low correlations between the response rate per site and all other predictors (Table C in Appendix). The site selection procedure resulted in low correlations among all pairs of the predictors (Figure 2), except for bird abundance and species richness ($r = 0.736$) and tree canopy cover and median income ($r = 0.363$). The predictor variables were sampled evenly across the field season (Figure A in Appendix).

3.1 Models Including Disposition

The signs of the significant coefficients across all models were consistent with our predictions: positive relationships for bird species richness, trees and median income, and negative relationships for distance to water on participant responses to every question (Table D in Appendix). Bird abundance was not significant in any of the models that also

included disposition. At least one disposition contrast was significant in models of responses to questions 2-5, supporting the decision to include disposition as a predictor in the models. The Spearman correlation between the participant's disposition (question 1) and the participant's overall life satisfaction (question 2) was $r = 0.574$ (Table 2). The differentiation between disposition (question 1) and overall life satisfaction (question 2) is supported by the models for those questions having different results.

There was no clear evidence in any of the models for a relationship between a participant's overall disposition as the response variable (question 1) and any of the predictor variables (Figure 3). Overall life satisfaction (question 2) was positively related to median income (Figure 4). Neighbourhood satisfaction (question 3) was positively related to bird species richness and median income (Figure 4). Satisfaction with local nature (question 4) was positively related to bird species richness and tree canopy cover (Figure 4). The rating of local nature in comparison to other areas (question 5) increased with tree canopy cover, income, and closeness to water (Figure 5). The importance of nature when choosing a place to live (question 6) increased with tree canopy cover and closeness to water (Figure 5). A participant's relationship and connectivity to nature (questions 7 and question 8 respectively) had no significant predictors (Figure 6).

3.2 Models Without Disposition

Comparing the models that included disposition to those that did not, the results were similar for tree canopy cover, distance to water, and median income, but there were some differences for the bird predictors (Figure C in Appendix). Bird abundance became significant for neighbourhood satisfaction (question 3) and satisfaction with local nature (question 4) when disposition was not included in the model. For rating of local nature in

comparison to other areas (question 5), bird abundance was marginally significant and species richness was not when disposition was not included in the model. Figure C shows the question 5 predictions for the bird variables for models with and without disposition as a predictor. Bird abundance and species richness had positive relationships to the participant's rating of local nature in comparison to other areas (question 5) in all models. Models without disposition had similar slopes to models with disposition, but slightly larger credible intervals.

4. Discussion

The positive association of bird species richness on resident well-being supports the hypothesis that there is a beneficial relationship between humans and nature. Neighbourhood satisfaction (question 3) was related to bird species richness, even before participants were prompted to think about nature (Figure 4). Although this study is correlational and cannot prove that the nature variables measured are the cause of the survey responses, it does indicate a positive association.. Bird species richness has been previously associated to human well-being (Fuller et al., 2007; Dallimer, et al., 2012). Bird song played after people were exposed to a negative stimulus lead to a more positive change in mood in comparison to anthropogenic noises (Benfield et al., 2014). Ratcliffe et al. (2013) conducted semi-structured interviews about stress reduction and attention restoration and found bird song to be commonly cited as positive by participants. The presence of charismatic species, including birds, lead to higher perceived benefit from nature areas (Bryce, 2016).

These results are consistent with the "biophilia hypothesis" (Kellert & Wilson, 1984) which proposes that humans have an innate subconscious need to affiliate with

other living things and that nature has a positive effect on human well-being. It is noteworthy that bird species richness was significant before participants learned that this study was about nature because it indicates that this result as that could indicate a subconscious response. It is possible that participants consciously thought about the birds in their neighbourhood when answering the question, but this seems unlikely based on participant feedback. People very rarely mentioned birds at any point during the survey, whereas trees and water were commonly mentioned by people. This is supported by the results from question 6, where participants were asked about the importance of nature when they chose where to live. Neither bird species richness nor abundance was significant here (Figure 5). This suggests that people are not consciously seeking to live in high bird diversity areas, despite bird diversity having the largest impact on neighbourhood satisfaction.

Bird abundance and species richness were highly correlated in this study (Figure 2). For neighbourhood satisfaction (question 3) and satisfaction with local nature (question 4) species richness appears to be a better predictor than abundance (Table D in Appendix). When disposition was included in the models for the participant's rating of local nature in comparison to other areas (question 5) neither bird abundance nor species richness were significant. If disposition was excluded, then abundance became a marginally significant predictor of question 5 (Figure C in Appendix). This suggests that abundance might be better predictor for a participant's rating of local nature in comparison to other areas (question 5) than species richness. However, the significance of abundance is unclear as it relies on the removal of disposition (a significant predictor in the model). Studies frequently only use one indicator - either species abundance or

species richness - making it difficult to determine which is the root cause (Fuller et al., 2007; Dallimer, et al., 2015; Marselle et al., 2015; Bryce 2016). A study by Wolf et al. (2017) addressed this by showing participants videos of birds and trees controlling for abundance and found that species richness positively affected mental well-being.

Tree canopy cover was positively related to satisfaction with local nature (question 4) and both tree canopy cover and distance to water were related to a participant's rating of local nature in comparison to other areas (question 5) and the importance of nature in choosing where to live (question 6) (Figures 4-5). These findings support the aesthetic preferences for vegetation and water as described by the biophilia hypothesis (Ulrich et al., 1993). Higher tree cover is preferred in residential neighbourhoods (Jiang, 2015). Spending time in treed areas has been found to improve happiness (Mackerron & Mourato, 2013). Similarly, coastal studies find that being near to waterbodies is perceived as beneficial by residents (Bryce, 2016). Viewing landscapes with water is associated with greater positive affect and higher perceived restorativeness (White et al., 2010). Based on the comments made by participants about their appreciation for trees and water in their neighbourhoods, it is unsurprising that participants considered trees and water to be important when rating local nature in comparison to other areas (question 5) and choosing where to live (question 6). Trees and water might be stronger predictors for these questions than the bird variables because they are larger features making them more apparent to people when making conscious comparisons.

Considering that people explicitly said trees and water mattered to them in their comments, it was unexpected that neither of these predictors was significant for

neighbourhood satisfaction (question 3). The significant predictors of neighbourhood satisfaction were disposition, median income, and bird species richness (Figure 3). This difference between the answers to question 3, where people had not yet been prompted to think about their appreciation of or affiliation to nature, and their responses to questions 5 and 6 where they had, suggests that people may overestimate the effects of trees and water on their satisfaction relative to the other components of nature such as bird abundance or richness.

This study found no significant predictors of nature relatedness (questions 7 and 8). However, almost all responses to these questions were very positive. The majority of participants indicating that a relationship with nature was important to them (question 7) and that they had a strong connection to nature (question 8) (Figure 6). For questions 7 and 8, 56.7% and 48.0% of people answered the most positive option “Strongly agree” respectively (Figure B in Appendix). The low level of variation in the data means that any effects of the predictors are difficult to detect. The low variation of participant responses to questions 7 and 8 may have been caused by the survey scale not being adequate to capture the full variation of the participant responses. If the survey scale had been extended to include even more positive options, then the participant responses may not have been condensed. Additionally, participants may have altered their behaviour to fit with their growing interpretation of the research goal, as they progressed through the questions (Orne, 1962). As the nature relatedness questions (questions 7 and 8) were the last items on the survey, by the time a participant got to these questions they may have thought that answering positively about nature was the expected result, which would bias the responses. As well, participants are prone to being agreeable to questions, which

could explain why the data are skewed so positively (Johns, 2010). Even though the results for the two nature relatedness questions were not significantly related to local nature, they do indicate that residents in Ottawa view their relationship and connection with nature to be very important.

Another explanation why there were no significant effects of predictors on peoples' relationship and connection to nature (questions 7 and 8) is that the local nature around one's home may not be a strong predictor of nature relatedness. People who are highly connected to nature may be willing to live in lower nature areas, as long as they can travel to spend time in more natural settings. Ottawa has many large parks and waterfront areas nearby that would be considered high amenity and they might be having a stronger effect on the nature relatedness of residents than the nature directly surrounding residences. Participants also mentioned hiking, camping, and other nature recreation activities not associated with their homes. These activities would be connected to nature relatedness but would not be captured by measuring local nature around their homes.

The study had some demographic limitations that may reduce our ability to generalize from the results. Demographic measures such as age and gender were not included in the models. Some studies have found that different demographics show different relationships between well-being and nature (Luck et al., 2011). However, a meta-analysis of nature relatedness found age and gender to not be significant moderators of happiness (Capaldi et al., 2014). A second limitation is that the vast majority of participants in my study were people who were home during the day (except for people who responded to the flyer, 14.4%). This would include people who were: stay-at-home

parents, working from home, shift work employees, unemployed, or retired. This bias towards people at home during the day should be similar across all sites as the sampling times were kept consistent. Nonetheless, people who spend more time at home might have a different relationship to their local nature, meaning the results might be less applicable to the average day shift working population. Nature relatedness has been found to be correlated with time spent in nature (Nisbet & Zelenski, 2013). People home during the day may spend more time in their neighbourhood strengthening their relationship and connection to their local nature. As well, most participants lived in detached or semi-detached housing as many apartment buildings had security preventing in-person surveying or flyers from being left. Those who live in apartment buildings may have less access to nature as they do not have a private yard. This could result in less time spent in nature potentially affecting their nature relatedness. Finally, this study and the majority of research on this topic are based in North America and Europe (Mutsuoko & Kaplan, 2008), which may limit the applicability of the results to other parts of the world. For example, a study from Singapore did not find that access to greenspace affected well-being (Saw et al., 2015). They theorized that because the total amount of nature and biodiversity was much higher across the region in Singapore than in temperate regions the negative effects of being isolated from nature may not be as pronounced.

The results from this study indicate that maintaining nature in the city is beneficial to resident satisfaction. Interestingly, although participants frequently mentioned trees and water being key features of their neighbourhoods and rarely mentioned birds, the nature measure that best predicted neighbourhood satisfaction (questions 3) was bird species richness. This suggests that conserving bird diversity could

be an important priority for urban planners. As well, many participants indicated that they strongly considered the quality of the environment when choosing where to live, and responses to this question were significantly related to tree canopy cover. City regulations should therefore discourage the removal of trees and encourage planting them, irrespective of the location, rather than focusing greenspace attention exclusively on parks. Real estate developers should consider that residential trees and street areas do attract buyers. Lastly, most participants indicated that their relationship and connection to nature were important to them. City governments should take into account that residents feel strongly about nature and make conserving urban biodiversity and the natural environment a priority.

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Tables

Table 1: List of 8 survey questions and possible responses. Participants were residents in Ottawa who lived within 250m of a pre-existing bird point count location of the Ottawa Bird Count (OBC). Participants were recruited door-to-door and through flyers during summer 2017.

	Question	Possible Responses						
Q1	How would you best describe your disposition?	Extremely happy	Moderately happy	Slightly happy	Neither happy nor unhappy	Slightly unhappy	Moderately unhappy	Extremely unhappy
Q2	How would you best describe your satisfaction with your life as a whole?	Extremely satisfied	Moderately satisfied	Slightly satisfied	Neither satisfied nor unsatisfied	Slightly unsatisfied	Moderately unsatisfied	Extremely unsatisfied
Q3	How would you best describe your satisfaction with your neighbourhood (i.e. the immediate area surrounding your residence, usually within a few hundred metres)?	Extremely satisfied	Moderately satisfied	Slightly satisfied	Neither satisfied nor unsatisfied	Slightly unsatisfied	Moderately unsatisfied	Extremely unsatisfied
Q4	How would you best describe your satisfaction with the natural environment in your neighbourhood?	Extremely satisfied	Moderately satisfied	Slightly satisfied	Neither satisfied nor unsatisfied	Slightly unsatisfied	Moderately unsatisfied	Extremely unsatisfied
Q5	How would you rate the quality of your neighbourhood's natural environment compared to other areas in Ottawa?	Far above average	Moderately above average	Slightly above average	Average	Slightly below average	Moderately below average	Far below average

	Question	Possible Responses						
Q6	How important a factor was the quality of the natural environment when you were choosing where to live?	Extremely important	Very important	Moderately important	Slightly important	Not at all important		
Q7	How do you feel about the statement "My relationship to nature is an important part of who I am"?	Strongly agree	Agree a little	Neither agree not disagree	Disagree a little	Strongly disagree		
Q8	How do you feel about the statement "I feel very connected to all living things and the earth"?	Strongly agree	Agree a little	Neither agree not disagree	Disagree a little	Strongly disagree		

Table 2: Spearman correlation values between the participant responses to each question. There were a total of 1035 participants who were residents in Ottawa who were recruited door-to-door and through flyers during summer 2017. Full questions and possible responses in Table 1.

	Disposition (Q1)	Overall Satisfaction (Q2)	Neighbourhood Satisfaction (Q3)	Nature Satisfaction (Q4)	Nature Comparison (Q5)	Nature Importance (Q6)	Nature Relationship (Q7)	Nature Connectivity (Q8)
Q1	1	0.574	0.288	0.219	0.185	0.084	0.130	0.143
Q2	0.574	1	0.250	0.173	0.177	0.050	0.116	0.117
Q3	0.288	0.250	1	0.453	0.334	0.117	0.085	0.100
Q4	0.219	0.173	0.453	1	0.517	0.245	0.137	0.142
Q5	0.185	0.177	0.334	0.517	1	0.392	0.230	0.185
Q6	0.084	0.050	0.117	0.245	0.392	1	0.386	0.266
Q7	0.130	0.116	0.085	0.137	0.230	0.386	1	0.591
Q8	0.143	0.117	0.100	0.142	0.185	0.266	0.591	1

Figures

Figure 1: Location of the study region in Ottawa, Canada (A), showing the distribution of 100 study sites across residential Ottawa (B). Sites were centered on pre-existing bird point count locations from the Ottawa Bird Count (OBC) and had a 250m radius. Tree canopy cover and water data were provided by the city of Ottawa. Within the sites residents were surveyed door-to-door about their life satisfaction and thoughts about their local environment. The study area was divided into quadrants (straight lines) for sampling. Each day two sites in the same quadrant were visited, with the surveyed quadrant changing every day in a clockwise pattern.

Figure 2: Histograms of predictor measurements for the 1035 door-to-door surveys, with bivariate plots and Pearson correlation values for all pairs of covariates. Variables include bird abundance and species richness (number of bird species) measured at the nearest Ottawa Bird Count (OBC) site to each participant, tree canopy cover in hectares within 250m radius of the participant, Euclidean distance in kilometers between the participant and the nearest body of water, and median individual yearly income in the Canadian Census dissemination area of the participant.

Figure 3: The independent effects of each of four predictor variables, after controlling for the effects of all other variables, on the probability (+/- 95% credible intervals) of a participant answering the most positive option (“Extremely happy”) in response to question 1 (“How would you best describe your disposition?”). The predictor variables in the model include bird species richness, tree canopy cover, distance to water, and median income. Each plot shows the effect of one predictor, while all other predictors are held constant at their means. Effects are plotted in blue if the 95% credible intervals around their coefficient estimates do not overlap 0.

Figure 4: The independent effects of each of four predictor variables, after controlling for the effects of all other variables, on the probability (+/- 95% credible intervals) of a participant answering the most positive option (“Extremely satisfied”) to question 2 (“How would you best describe your satisfaction with your life as a whole?”), question 3 (“How would you best describe your satisfaction with your neighbourhood (i.e. the immediate area surrounding your residence, usually within a few hundred metres)?”), and question 4 (“How would you best describe your satisfaction with the natural environment in your neighbourhood?”). The predictor variables in the model include bird species richness, tree canopy cover,

distance to water, median income, and disposition (taken from question 1). Each plot shows the effect of one predictor, while all other predictors are held constant at their means (median for disposition). Effects are plotted in blue if the 95% credible intervals around their coefficient estimates do not overlap 0.

Figure 5: The independent effects of each of four predictor variables, after controlling for the effects of all other variables, on the probability (+/- 95% credible intervals) of a participant answering the most positive option (“Far above average” or “Extremely important”) for question 5 (“How would you rate the quality of your neighbourhood’s natural environment compared to other areas in Ottawa?”) and question 6 (“How important a factor was the quality of the natural environment when you were choosing where to live?”). The predictor variables in the model include bird species richness, tree canopy cover, distance to water, median income, and disposition (taken from question 1). Each plot shows the effect of one predictor, while all other predictors are held constant at their means (median for disposition). Effects are plotted in blue if the 95% credible intervals around their coefficient estimates do not overlap 0.

Figure 6: The independent effects of each of four predictor variables, after controlling for the effects of all other variables, on the probability (+/- 95% credible intervals) of a participant answering the most positive option (“Strongly agree”) for question 7 (“How do you feel about the statement “My relationship to nature is an important part of who I am”?”) and question 8 (“How do you feel about the statement “I feel very connected to all living things and the earth”?”). The predictor variables in the model include bird species richness, tree canopy cover, distance to water, median income, and disposition (taken from question 1). Each plot shows the effect of one predictor, while all other predictors are held constant at their means (median for disposition). Effects are plotted in blue if the 95% credible intervals.

Appendices

Figure A: In-person surveys were conducted between May 4, 2017 and August 17, 2017. A few on-line surveys were returned after August 17th. The sequence of surveys was designed avoid any confounding of sampling date with any of the predictor variables.

Table A: Survey results recorded during study. A total of 1035 people were surveyed across 100 sites located in Ottawa, Canada (Figure 1). Site corresponds to the site designation used in this study. Easting and Northing are the co-ordinates of the survey site (NAD 83 UTM Zone 18). User ID is a unique identifier for each participant. IDs with four numbers were surveys completed in-person, the first two digits correspond to the site and the second two to the sample number. IDs with a letter prefix were respondents to a flyer. Date is the recorded month and day of the survey submission, all in 2017. Predictor variables include bird abundance (Abun.) and species richness (Rich.) measured at the nearest Ottawa Bird Count (OBC) point to each participant, tree canopy cover in hectares within 250m radius of the participant (Tree), Euclidean distance in kilometers between the participant and the nearest body of water (Water), and median individual yearly income in the dissemination area of the participant (Inc.). Q1-Q8 correspond to the survey questions described in Table 1. Responses are coded so that the least positive answer is 1. Q1-Q5 have a 7-point scale and Q6-Q8 have a 5-point scale.

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	442406	5027902	0101	05-04	10	5	3.97	0.99	68744	7	7	7	6	7	3	5	4
1	442406	5027902	0102	05-04	10	5	4.10	1.00	68744	4	4	6	3	4	1	2	1
1	442406	5027902	0103	05-04	10	5	3.97	1.00	68744	6	6	7	7	6	2	4	4
1	442406	5027902	0104	05-04	10	5	3.71	1.00	68744	7	6	7	6	6	5	5	5
1	442406	5027902	0105	05-04	10	5	4.05	1.05	68744	6	7	7	6	6	5	5	5
1	442406	5027902	0106	05-04	10	5	4.12	1.02	68744	5	5	6	6	7	5	4	4
1	442406	5027902	0107	05-04	10	5	4.24	1.04	68744	6	6	5	4	4	2	3	4
1	442406	5027902	0108	05-04	10	5	4.30	1.07	68744	6	6	7	7	7	1	5	5
1	442406	5027902	0109	05-04	10	5	4.29	1.08	68744	5	5	6	7	6	3	5	5
1	442406	5027902	0110	05-04	10	5	4.32	1.09	68744	3	3	7	6	5	3	4	4
1	442406	5027902	A007	05-11	10	5	3.80	0.98	68744	5	6	7	7	4	3	3	3
2	441172	5025155	0201	05-04	17	5	1.99	1.44	60685	7	6	7	6	7	5	4	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
2	441172	5025155	0202	05-04	17	5	2.03	1.42	60685	6	6	7	6	4	2	4	4
2	441172	5025155	A048	05-16	17	5	1.99	1.51	60685	6	6	5	6	2	4	5	4
3	451119	5032250	0301	05-10	4	4	6.51	2.15	18800	7	6	6	7	7	5	5	5
3	451119	5032250	0302	05-10	4	4	6.47	2.22	18800	7	7	7	7	7	5	5	5
3	451119	5032250	0303	05-10	4	4	6.47	2.22	18800	6	6	5	6	5	5	4	4
3	451119	5032250	0304	05-10	4	4	6.47	2.22	18800	7	6	7	7	6	5	5	5
3	451119	5032250	0305	05-10	4	4	6.47	2.22	18800	7	7	6	6	4	3	4	5
3	450985	5032248	0306	05-10	5	4	5.23	2.41	18800	6	6	6	6	5	3	4	4
3	450985	5032248	0307	05-10	5	4	5.23	2.41	18800	3	3	6	6	6	5	5	5
3	450985	5032248	0309	05-10	5	4	5.37	2.36	18800	5	6	6	6	6	4	5	3
3	450985	5032248	0310	05-10	5	4	5.37	2.36	18800	6	2	5	2	2	5	5	5
4	448089	5030245	0401	05-10	16	9	3.95	0.35	44228	7	7	7	6	7	5	5	5
4	448089	5030245	0402	05-10	16	9	4.04	0.38	44228	6	6	7	4	4	3	4	2
4	448089	5030245	0403	05-10	16	9	3.73	0.32	44228	7	7	6	7	7	5	5	5
4	448089	5030245	0404	05-10	16	9	3.72	0.29	44228	6	7	7	7	7	5	5	5
4	448089	5030245	0405	05-10	16	9	3.73	0.26	44228	6	6	7	7	6	3	5	5
4	448089	5030245	0406	05-10	16	9	3.86	0.28	44228	6	7	6	6	6	4	5	5
4	448089	5030245	0407	05-10	16	9	3.92	0.32	44228	6	6	7	6	7	4	4	4
4	448089	5030245	0408	05-10	16	9	4.03	0.35	42890	7	7	6	6	7	4	5	5
4	448089	5030245	0409	05-10	16	9	4.13	0.32	42890	6	5	7	6	4	4	4	5
4	448089	5030245	0410	05-10	16	9	4.08	0.38	44228	6	2	5	6	6	4	5	5
4	448089	5030245	A153	05-11	16	9	3.94	0.39	44228	6	7	7	7	7	4	3	3
5	449842	5022451	0501	05-11	16	10	5.09	0.20	26602	7	7	6	6	6	3	4	4
5	449842	5022451	0502	05-11	16	10	4.19	0.23	26602	4	6	6	6	6	4	5	5
5	449842	5022451	0503	05-11	16	10	5.21	0.20	26602	7	6	6	7	6	5	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
6	450063	5026986	0601	05-11	22	10	5.77	2.50	50894	6	5	7	6	6	3	5	4
6	450063	5026986	0602	05-11	22	10	5.70	2.51	50894	6	6	7	7	7	4	5	5
6	450063	5026986	0603	05-11	22	10	5.43	2.49	50894	6	6	7	6	6	5	5	5
6	450063	5026986	0604	05-11	22	10	5.77	2.42	50894	4	4	6	6	5	4	4	4
6	450063	5026986	0605	05-11	22	10	5.61	2.44	50894	7	7	5	7	6	4	5	5
6	450063	5026986	0606	05-11	22	10	5.54	2.45	50894	6	6	6	7	6	4	5	5
6	450063	5026986	0607	05-11	22	10	5.43	2.47	50894	6	6	7	7	7	4	5	5
6	450063	5026986	0608	05-11	22	10	5.72	2.39	50894	2	3	4	4	3	2	4	1
6	450063	5026986	0609	05-11	22	10	6.25	2.37	50894	4	6	7	6	6	4	4	4
6	450063	5026986	0610	05-11	22	10	5.07	2.51	50894	4	4	7	7	7	5	5	5
6	450063	5026986	A212	05-11	22	10	5.21	2.49	50894	6	7	7	5	5	2	3	3
7	444111	5022896	0701	05-15	7	6	3.12	0.83	37117	4	7	7	6	4	3	5	5
7	444111	5022896	0702	05-15	7	6	3.28	0.94	37117	7	7	7	7	6	3	3	5
7	444111	5022896	0703	05-15	7	6	3.30	0.90	37117	6	6	6	6	7	5	5	5
7	444111	5022896	0704	05-15	7	6	3.26	0.85	37117	7	7	6	6	6	5	5	4
7	444111	5022896	0705	05-15	7	6	3.50	0.90	37117	6	6	5	5	5	4	5	5
7	444111	5022896	0706	05-15	7	6	3.27	0.81	37117	4	2	4	5	5	2	5	5
7	444111	5022896	0707	05-15	7	6	3.20	0.81	37117	6	6	7	6	6	4	5	4
7	444111	5022896	0708	05-15	7	6	2.93	0.73	37117	7	7	7	7	6	3	5	3
7	444111	5022896	0709	05-15	7	6	3.64	0.98	37117	6	7	6	7	7	5	5	5
7	444111	5022896	0710	05-15	7	6	3.11	0.67	37117	7	6	7	7	6	4	5	5
8	441886	5021279	0801	05-15	16	6	3.98	1.68	37965	6	5	6	7	6	4	3	3
8	441886	5021279	0802	05-15	16	6	3.70	1.65	37965	6	5	6	5	6	5	4	4
8	441886	5021279	0803	05-15	16	6	3.77	1.64	37965	7	6	6	6	4	3	4	4
8	441886	5021279	0804	05-15	16	6	3.87	1.63	37965	6	5	6	6	5	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
8	441886	5021279	0805	05-15	16	6	3.82	1.62	37965	4	6	7	7	5	3	4	4
8	441886	5021279	0806	05-15	16	6	3.73	1.51	37965	5	5	4	6	4	4	4	3
8	441886	5021279	0807	05-15	16	6	3.80	1.53	37965	7	7	7	5	5	1	4	5
8	441886	5021279	0808	05-15	16	6	3.60	1.65	37965	7	7	7	7	6	5	5	5
8	441886	5021279	0809	05-15	16	6	3.68	1.62	37965	6	6	7	6	6	4	4	4
8	441886	5021279	0810	05-15	16	6	3.83	1.56	37965	6	6	6	6	6	4	5	5
9	438308	5023200	0902	05-16	18	11	6.99	1.12	56223	7	6	6	6	6	5	5	5
9	438308	5023200	0903	05-16	18	11	7.29	1.10	56223	6	6	7	6	6	5	5	5
9	438308	5023200	0904	05-16	18	11	8.80	1.20	56223	6	7	5	7	6	3	5	5
9	438308	5023200	0906	05-16	18	11	6.60	1.05	31790	6	4	7	7	4	1	5	5
9	438308	5023200	0907	05-16	18	11	6.50	1.04	31790	6	6	7	7	6	4	5	4
9	438308	5023200	0908	05-16	18	11	6.41	1.02	31790	6	5	7	7	7	3	5	5
9	438308	5023200	0909	05-16	18	11	5.94	0.99	31790	6	7	6	6	5	4	4	5
9	438308	5023200	0910	05-16	18	11	6.41	1.04	31790	6	6	6	7	6	4	4	3
10	440163	5023246	1001	05-16	18	12	3.38	2.20	41187	3	3	6	6	3	3	3	4
10	440163	5023246	1002	05-16	18	12	3.33	2.19	41187	5	5	7	5	6	4	5	5
10	440163	5023246	1003	05-16	18	12	3.16	2.29	41187	6	6	7	6	7	4	5	5
10	440163	5023246	1004	05-16	18	12	3.35	2.26	46544	6	6	6	6	6	4	4	4
10	440163	5023246	1005	05-16	18	12	3.11	2.16	46544	7	7	7	6	5	3	3	4
10	440163	5023246	1006	05-16	18	12	3.03	2.17	46544	6	6	5	5	6	2	4	3
10	440163	5023246	1007	05-16	18	12	2.93	2.25	41187	6	7	7	6	6	5	4	4
10	440163	5023246	1008	05-16	18	12	2.97	2.28	41187	6	6	7	7	6	3	4	4
10	440163	5023246	1010	05-16	18	12	3.02	2.36	41187	6	6	7	7	5	3	3	3
10	440163	5023246	1011	05-16	18	12	3.10	2.35	41187	7	7	7	2	4	1	4	3
11	445643	5027883	1101	05-19	11	5	4.82	0.60	60799	3	7	6	2	3	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
11	445643	5027883	1102	05-19	11	5	5.16	0.61	60799	7	7	7	7	7	5	4	4
11	445643	5027883	1103	05-19	11	5	5.05	0.56	60799	7	7	7	7	7	5	5	5
11	445643	5027883	1104	05-19	11	5	4.90	0.55	60799	6	6	7	7	7	4	5	4
11	445643	5027883	1105	05-19	11	5	4.89	0.55	60799	6	6	7	6	5	4	4	4
11	445643	5027883	1106	05-19	11	5	5.22	0.63	60799	7	7	7	7	4	2	3	4
11	445643	5027883	1107	05-19	11	5	5.13	0.65	53638	7	7	6	6	6	4	5	4
11	445643	5027883	1108	05-19	11	5	4.92	0.52	60799	6	7	7	6	6	2	4	5
11	445643	5027883	1109	05-19	11	5	4.84	0.52	60799	6	6	7	7	7	3	5	4
11	445643	5027883	1110	05-19	11	5	5.03	0.54	60799	7	7	7	7	6	5	5	5
11	445643	5027883	A326	05-19	11	5	5.12	0.61	60799	2	5	2	6	6	5	3	4
11	445643	5027883	A343	05-19	11	5	5.14	0.64	60799	6	7	7	7	6	3	2	4
11	445643	5027883	A345	05-19	11	5	5.16	0.62	53638	6	7	7	6	5	3	4	5
12	445687	5031060	1201	05-19	7	3	2.38	0.40	28595	7	6	7	7	6	5	4	4
12	445687	5031060	1202	05-19	7	3	2.46	0.47	28595	7	7	7	4	3	3	3	5
12	445687	5031060	1203	05-19	7	3	2.08	0.45	31103	6	7	6	6	5	4	4	5
12	445687	5031060	1204	05-19	7	3	2.08	0.46	31103	6	6	5	6	6	4	4	4
12	445687	5031060	1205	05-19	7	3	2.44	0.41	28595	7	7	6	6	7	4	5	4
12	445687	5031060	1206	05-19	7	3	2.44	0.42	28595	6	6	7	6	6	4	4	3
12	445687	5031060	1207	05-19	7	3	2.47	0.43	28595	6	6	7	6	6	4	5	5
12	445687	5031060	1208	05-19	7	3	2.48	0.45	28595	6	7	7	7	7	4	4	4
12	445687	5031060	1209	05-19	7	3	2.60	0.39	28595	6	6	6	3	3	3	4	3
12	445687	5031060	1210	05-19	7	3	2.68	0.37	28595	3	4	6	6	5	4	5	5
12	445687	5031060	A379	05-24	7	3	2.45	0.46	28595	5	5	6	3	3	2	4	4
12	445687	5031060	A391	05-21	7	3	2.06	0.44	31103	6	7	6	4	3	1	2	2
13	448554	5028957	1301	05-23	20	6	3.30	0.61	19994	7	6	7	6	6	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
13	448554	5028957	1302	05-23	20	6	4.27	0.63	19994	6	6	7	6	6	4	5	5
13	448554	5028957	1303	05-23	20	6	3.92	0.60	19994	1	7	7	7	7	5	5	5
13	448554	5028957	1304	05-23	20	6	3.88	0.67	19994	7	7	7	6	6	4	4	4
13	448554	5028957	1305	05-23	20	6	3.59	0.64	19994	5	6	7	6	4	4	3	3
13	448554	5028957	A406	05-24	20	6	4.19	0.62	19994	6	6	7	7	7	3	1	2
14	452334	5029986	1401	05-23	12	8	3.84	4.13	29792	5	6	7	6	6	4	5	5
14	452334	5029986	1402	05-23	12	8	3.97	4.17	29792	7	5	7	6	7	3	5	5
14	452334	5029986	1403	05-23	12	8	4.69	4.21	29792	7	7	7	3	6	2	3	3
14	452334	5029986	1404	05-23	12	8	4.74	4.21	29792	6	6	6	5	4	3	5	5
14	452334	5029986	1405	05-23	12	8	4.48	4.16	42408	6	6	6	5	3	4	4	5
14	452334	5029986	1406	05-23	12	8	4.43	4.17	42408	6	6	7	7	4	5	5	4
14	452334	5029986	1407	05-23	12	8	4.48	4.12	42408	6	6	6	6	6	5	5	5
14	452334	5029986	1408	05-23	12	8	4.28	4.13	42408	5	5	4	6	5	3	4	4
14	452334	5029986	1409	05-23	12	8	3.95	4.08	42408	6	6	7	6	4	4	3	4
15	444803	5022626	1501	05-24	9	6	3.63	0.14	35194	6	6	6	7	7	3	5	5
15	444803	5022626	1502	05-24	9	6	3.63	0.14	35194	6	6	6	5	4	3	5	5
15	444803	5022626	1503	05-24	9	6	3.63	0.14	35194	6	6	7	5	5	4	4	4
15	444803	5022626	1504	05-24	9	6	3.63	0.14	35194	6	7	5	7	7	5	5	5
15	444803	5022626	1505	05-24	9	6	3.63	0.14	35194	6	6	7	6	6	3	4	5
15	444803	5022626	1506	05-24	9	6	3.63	0.14	35194	7	6	6	7	7	5	5	5
15	444803	5022626	1507	05-24	9	6	3.63	0.14	35194	6	5	6	6	6	2	4	5
15	444803	5022626	1508	05-24	9	6	3.63	0.14	35194	6	6	7	7	4	3	3	2
15	444803	5022626	1509	05-24	9	6	3.63	0.14	35194	5	6	3	5	6	4	4	5
15	444803	5022626	1510	05-24	9	6	3.63	0.14	35194	6	6	7	3	3	2	4	5
15	444803	5022626	A437	05-31	9	6	3.63	0.14	35194	6	7	6	6	5	2	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
15	444803	5022626	A463	05-24	9	6	3.63	0.14	35194	5	6	6	6	6	4	5	5
15	444803	5022626	A464	05-26	9	6	3.63	0.14	35194	6	6	6	7	6	4	5	5
15	444803	5022626	A471	06-03	9	6	3.63	0.14	35194	7	7	7	7	7	5	5	5
16	447356	5023644	1601	05-24	13	8	3.75	1.36	44230	6	6	6	6	7	5	5	5
16	447356	5023644	1602	05-24	13	8	3.64	1.44	44230	6	5	4	7	3	5	5	5
16	447356	5023644	1603	05-24	13	8	3.73	1.41	44230	6	6	7	6	6	5	5	5
16	447356	5023644	1604	05-24	13	8	3.79	1.37	44230	7	7	7	7	6	3	4	4
16	447356	5023644	1605	05-24	13	8	3.78	1.34	44230	6	6	7	6	6	1	5	5
16	447356	5023644	1606	05-24	13	8	4.01	1.24	44230	6	6	7	6	5	2	5	5
16	447356	5023644	1607	05-24	13	8	3.88	1.32	44230	6	6	7	7	7	2	2	2
16	447356	5023644	1608	05-24	13	8	3.75	1.39	47871	6	7	7	7	6	5	5	5
16	447356	5023644	1609	05-24	13	8	4.26	1.33	47871	5	6	7	6	6	5	4	4
16	447356	5023644	1610	05-24	13	8	4.21	1.31	47871	7	7	7	7	6	3	4	3
16	447356	5023644	A495	05-26	13	8	3.89	1.27	44230	6	6	6	6	6	4	5	4
16	447356	5023644	A500	05-26	13	8	3.85	1.28	44230	6	6	7	7	7	3	3	4
16	447356	5023644	A514	05-24	13	8	4.24	1.21	44230	6	6	6	7	6	5	5	5
17	440454	5027568	1701	06-01	40	6	5.40	0.23	46871	6	6	6	6	6	4	4	3
17	440454	5027568	1702	06-01	40	6	5.32	0.22	46871	7	7	5	5	7	5	5	2
17	440454	5027568	1703	06-01	40	6	6.30	0.24	46871	6	6	7	7	6	3	5	5
17	440454	5027568	1704	06-01	40	6	5.41	0.24	46871	6	7	7	6	6	4	4	4
17	440454	5027568	1705	06-01	40	6	5.45	0.25	46871	6	5	7	7	6	4	4	4
18	439933	5025478	1801	06-01	10	6	3.85	0.51	35400	6	5	6	7	6	1	5	4
18	439933	5025478	1802	06-01	10	6	3.92	0.53	35400	7	7	7	7	6	4	5	3
18	439933	5025478	1803	06-01	10	6	3.89	0.55	35400	6	6	6	6	6	5	5	5
18	439933	5025478	1804	06-01	10	6	3.91	0.45	35400	7	7	7	7	7	5	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
18	439933	5025478	1805	06-01	10	6	4.08	0.52	35400	3	1	7	7	4	5	5	4
18	439933	5025478	1806	06-01	10	6	4.10	0.47	35400	5	6	5	5	6	3	4	3
18	439933	5025478	1807	06-01	10	6	3.81	0.59	35400	6	6	6	6	6	4	4	3
18	439933	5025478	1808	06-01	10	6	3.83	0.57	63224	6	6	7	7	5	3	3	4
18	439933	5025478	1809	06-01	10	6	3.81	0.55	63224	6	7	7	7	6	4	5	4
18	439933	5025478	1810	06-01	10	6	3.81	0.53	63224	4	6	7	4	6	1	5	5
18	439933	5025478	A540	06-04	10	6	3.93	0.49	35400	4	3	3	7	7	4	4	4
18	439933	5025478	A557	06-02	10	6	3.92	0.57	35400	6	6	7	7	6	3	4	3
19	444081	5028637	1901	06-07	11	4	3.41	0.59	30192	7	7	7	7	7	3	5	5
19	444081	5028637	1902	06-07	11	4	3.02	0.54	35342	6	3	7	7	7	4	5	5
19	444081	5028637	1903	06-07	11	4	2.75	0.54	35342	6	6	7	4	3	3	4	5
19	444081	5028637	1904	06-07	11	4	2.50	0.59	35342	6	6	7	5	4	4	5	4
19	444081	5028637	1905	06-07	11	4	2.50	0.59	35342	4	6	4	6	5	5	5	4
19	444081	5028637	1906	06-07	11	4	2.65	0.59	35342	7	7	6	6	2	3	5	5
19	444081	5028637	1907	06-07	11	4	2.67	0.59	35342	6	1	6	6	4	4	5	5
19	444081	5028637	1908	06-07	11	4	3.06	0.57	35342	6	7	7	6	5	4	5	5
19	444081	5028637	1909	06-07	11	4	3.91	0.53	30192	4	6	6	2	4	1	5	5
19	444081	5028637	1910	06-07	11	4	4.07	0.47	30192	7	7	5	3	2	3	5	5
19	444081	5028637	A603	06-09	11	4	3.04	0.53	35342	7	6	6	5	6	4	4	5
19	444081	5028637	A604	06-07	11	4	3.00	0.53	35342	7	7	6	6	5	4	4	4
19	444081	5028637	A612	07-23	11	4	2.50	0.59	35342	5	5	6	3	4	2	5	4
19	444081	5028637	A631	06-07	11	4	3.59	0.59	30192	7	7	6	6	6	2	4	3
20	447461	5030091	2001	06-07	16	8	4.26	0.26	34923	7	7	6	7	7	1	5	5
20	447461	5030091	2002	06-07	16	8	4.43	0.23	52863	4	5	5	5	5	5	5	5
20	447461	5030091	2003	06-07	16	8	4.11	0.14	52863	6	7	6	6	7	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
20	447461	5030091	2004	06-07	16	8	4.31	0.33	34923	5	3	6	6	5	3	4	2
20	447461	5030091	2005	06-07	16	8	4.29	0.34	34923	7	7	6	6	6	4	5	5
20	447461	5030091	2006	06-07	16	8	4.27	0.34	34923	6	6	6	6	6	3	3	5
20	447461	5030091	2007	06-07	16	8	4.07	0.12	52863	6	6	7	6	6	3	2	2
20	447461	5030091	2008	06-07	16	8	3.93	0.09	52863	6	6	6	7	7	4	3	3
20	447461	5030091	2009	06-07	16	8	3.80	0.11	52863	6	7	5	3	3	5	5	5
20	447461	5030091	2010	06-07	16	8	4.26	0.34	34923	7	5	7	7	5	2	3	5
20	447461	5030091	A661	06-07	16	8	4.44	0.22	34923	6	6	6	7	6	2	4	4
20	447461	5030091	A664	06-15	16	8	4.25	0.17	52863	7	6	7	6	6	5	5	5
20	447461	5030091	A680	06-07	16	8	4.12	0.14	52863	6	6	6	6	6	4	5	5
20	447461	5030091	A703	06-12	16	8	4.35	0.24	52863	5	6	4	7	7	3	5	1
21	451347	5030648	2101	06-08	18	11	6.40	3.49	20994	3	2	6	7	4	4	2	1
21	451347	5030648	2102	06-08	18	11	6.96	3.32	20994	7	6	6	6	6	4	4	5
21	451347	5030648	2103	06-08	18	11	7.63	3.45	36440	6	6	1	7	7	5	5	5
21	451347	5030648	2104	06-08	18	11	6.40	3.49	20994	5	5	6	6	6	4	5	5
21	451347	5030648	2105	06-08	18	11	5.71	3.47	20994	7	6	7	7	7	5	5	5
21	451347	5030648	2106	06-08	18	11	7.63	3.45	36440	7	6	7	5	7	5	5	5
21	451347	5030648	2107	06-08	18	11	7.63	3.45	36440	6	7	7	7	7	5	5	4
21	451347	5030648	2108	06-08	18	11	4.84	3.39	20994	6	6	6	5	6	1	3	3
21	451347	5030648	2110	06-08	18	11	7.83	3.19	20994	4	5	7	6	5	1	2	5
22	446682	5026396	2201	06-08	45	13	2.17	0.04	50459	6	7	7	7	7	5	5	5
22	446682	5026396	2202	06-08	45	13	2.62	0.08	50459	6	6	6	6	7	3	4	5
22	446682	5026396	2203	06-08	45	13	2.68	0.09	50459	6	6	6	6	6	4	4	4
22	446682	5026396	2204	06-08	45	13	2.35	0.07	50459	5	5	7	6	5	2	4	3
22	446682	5026396	2205	06-08	45	13	2.80	0.13	52917	6	6	7	7	6	5	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
22	446682	5026396	2206	06-08	45	13	2.98	0.15	52917	4	6	6	4	5	4	4	4
22	446682	5026396	2207	06-08	45	13	2.94	0.16	52917	6	7	7	7	7	4	5	3
22	446682	5026396	2208	06-08	45	13	2.50	0.10	50459	7	7	7	7	7	2	4	4
22	446682	5026396	2209	06-08	45	13	2.48	0.14	50459	6	7	5	4	6	4	2	3
22	446682	5026396	2210	06-08	45	13	2.10	0.09	50459	6	6	7	7	7	5	4	5
23	441644	5021884	2301	06-09	19	8	3.97	2.23	45611	7	6	7	6	6	3	5	5
23	441644	5021884	2302	06-09	19	8	4.01	2.27	52811	6	6	7	6	5	4	5	4
23	441644	5021884	2303	06-09	19	8	3.85	2.32	52811	6	7	6	7	5	4	4	5
23	441644	5021884	2304	06-09	19	8	3.81	2.26	45611	6	5	7	6	5	5	5	4
23	441644	5021884	2305	06-09	19	8	3.79	2.26	45611	6	7	5	6	5	4	3	4
23	441644	5021884	2306	06-09	19	8	3.62	2.31	45611	4	6	7	6	7	2	5	5
23	441644	5021884	2307	06-09	19	8	3.69	2.31	45611	5	5	6	7	6	3	3	3
23	441644	5021884	2308	06-09	19	8	3.78	2.23	45611	5	5	6	5	4	4	4	4
23	441644	5021884	2309	06-09	19	8	4.04	2.24	52811	6	7	6	6	7	4	4	3
23	441644	5021884	2310	06-09	19	8	3.72	2.39	45611	5	6	6	6	6	3	4	4
24	444432	5024561	2401	06-09	9	6	3.93	0.36	50991	6	5	6	7	7	5	2	3
24	444432	5024561	2402	06-09	9	6	3.63	0.40	50991	7	6	7	6	7	4	4	3
24	444432	5024561	2403	06-09	9	6	3.41	0.47	50991	6	6	7	7	5	3	4	4
24	444432	5024561	2404	06-09	9	6	3.44	0.52	50991	5	4	5	6	5	5	5	4
24	444432	5024561	2405	06-09	9	6	3.06	0.49	50991	5	6	7	6	5	3	2	4
24	444432	5024561	2406	06-09	9	6	4.06	0.33	50991	5	5	6	7	5	4	4	5
24	444432	5024561	2407	06-09	9	6	2.23	0.45	50991	6	6	6	6	6	4	4	3
24	444432	5024561	2408	06-09	9	6	2.23	0.45	50991	5	6	5	6	6	4	4	3
24	444432	5024561	2409	06-09	9	6	2.32	0.47	50991	6	6	3	3	3	3	4	5
24	444432	5024561	2410	06-09	9	6	3.99	0.31	50991	6	5	6	6	6	4	4	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
24	444432	5024561	A883	06-09	9	6	4.03	0.36	50991	7	7	6	7	6	5	5	5
24	444432	5024561	A888	06-09	9	6	3.74	0.41	50991	6	6	5	5	6	3	5	4
25	436569	5022642	2501	06-12	27	12	4.14	0.12	48461	4	5	5	6	5	3	4	4
25	436569	5022642	2502	06-12	27	12	3.63	0.09	48461	6	6	6	2	6	4	5	4
25	436569	5022642	2503	06-12	27	12	3.58	0.09	48461	7	7	6	7	6	5	4	3
25	436569	5022642	2504	06-12	27	12	4.04	0.13	48461	6	5	6	7	5	3	4	4
25	436569	5022642	2505	06-12	27	12	3.64	0.15	48461	7	7	7	6	5	3	5	5
25	436569	5022642	2506	06-12	27	12	3.97	0.14	48461	6	6	7	7	7	5	5	4
25	436569	5022642	2507	06-12	27	12	3.92	0.13	48461	7	7	6	7	7	5	5	5
25	436569	5022642	2508	06-12	27	12	4.59	0.17	48461	6	6	6	6	7	5	5	5
25	436569	5022642	2509	06-12	27	12	4.62	0.17	48461	6	6	7	7	6	5	5	5
25	436569	5022642	2510	06-12	27	12	3.05	0.11	48461	6	6	7	7	7	5	5	5
25	436569	5022642	A899	06-15	27	12	4.33	0.15	48461	5	6	7	7	7	5	5	4
25	436569	5022642	A902	06-16	27	12	4.19	0.13	48461	7	7	7	7	7	5	5	5
25	436569	5022642	A917	06-12	27	12	3.35	0.11	48461	5	6	7	7	6	4	4	5
25	436569	5022642	A921	06-12	27	12	3.41	0.13	48461	7	7	7	7	7	3	2	2
25	436569	5022642	A934	06-12	27	12	3.32	0.14	48461	6	7	7	7	7	4	5	5
26	437883	5020404	2601	06-12	5	4	5.66	0.98	43235	7	7	7	7	7	5	5	5
26	437883	5020404	2602	06-12	5	4	4.72	0.90	43235	6	7	6	7	7	4	5	5
26	437883	5020404	2603	06-12	5	4	4.42	0.89	43235	7	7	7	6	6	2	5	5
26	437883	5020404	2604	06-12	5	4	4.72	0.97	43235	6	6	7	6	6	4	5	4
26	437883	5020404	2605	06-12	5	4	4.96	0.99	43235	6	6	6	6	7	4	4	4
26	437883	5020404	2606	06-12	5	4	5.27	1.02	43235	6	6	6	6	7	5	5	4
26	437883	5020404	2607	06-12	5	4	5.69	0.95	43235	6	7	7	7	7	5	5	5
26	437883	5020404	2608	06-12	5	4	5.38	0.92	43235	7	7	7	6	7	2	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
26	437883	5020404	2609	06-12	5	4	5.78	0.92	44716	7	6	7	6	5	4	4	4
26	437883	5020404	2610	06-12	5	4	4.85	0.80	44716	6	7	7	6	6	2	2	3
26	437883	5020404	A942	06-12	5	4	5.19	0.94	43235	7	7	7	7	6	3	3	3
26	437883	5020404	A961	06-13	5	4	5.14	0.89	44716	6	6	7	7	7	4	4	3
27	447380	5031209	2702	06-13	22	10	3.10	0.06	19534	6	6	5	7	6	5	4	4
27	447380	5031209	2703	06-13	22	10	3.50	0.13	19534	6	6	6	6	6	4	5	4
27	447380	5031209	2704	06-13	22	10	3.20	0.12	19534	5	5	2	3	3	3	5	5
27	447380	5031209	2705	06-13	22	10	3.23	0.16	19534	7	7	7	7	6	3	4	4
27	447380	5031209	2706	06-13	22	10	3.77	0.23	19534	7	6	6	6	6	5	5	5
27	447380	5031209	B004	06-16	22	10	3.44	0.19	19534	6	6	6	6	5	3	4	4
27	447380	5031209	B011	06-13	22	10	3.81	0.22	19534	6	6	7	7	6	4	5	4
27	447380	5031209	B012	06-13	22	10	3.70	0.23	19534	7	7	6	7	5	3	3	4
28	449163	5033707	2801	06-13	7	7	5.06	0.82	38950	5	6	4	7	5	3	5	3
28	449163	5033707	2802	06-13	7	7	4.98	0.81	38950	6	7	7	7	7	5	5	5
28	449163	5033707	2803	06-13	7	7	5.18	0.89	38950	7	6	6	7	6	4	5	5
28	449163	5033707	2804	06-13	7	7	5.18	0.89	38950	6	6	5	6	6	5	5	4
28	449163	5033707	2805	06-13	7	7	5.18	0.89	38950	6	6	6	7	6	3	4	4
28	449163	5033707	2807	06-13	7	7	5.18	0.89	38950	6	6	7	7	7	5	4	3
28	449163	5033707	2808	06-13	7	7	4.65	0.80	38950	5	6	7	7	7	5	5	5
28	449163	5033707	2809	06-13	7	7	3.94	0.73	41094	7	7	7	7	7	4	5	4
28	449163	5033707	2810	06-13	7	7	4.47	0.80	41094	7	7	7	7	7	5	5	5
28	449163	5033707	B035	06-13	7	7	4.36	0.81	38950	6	7	7	7	7	4	5	5
28	449163	5033707	B038	06-13	7	7	5.18	0.89	38950	3	6	7	7	6	4	5	5
28	449163	5033707	B074	07-02	7	7	5.18	0.89	38950	6	6	6	7	5	4	4	3
28	449163	5033707	B076	06-24	7	7	5.18	0.89	38950	5	5	6	7	7	5	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
28	449163	5033707	B087	06-19	7	7	5.18	0.89	38950	6	6	6	7	5	4	5	4
29	446891	5025317	2901	06-14	8	7	5.63	0.92	33820	7	6	7	6	4	5	5	5
29	446891	5025317	2902	06-14	8	7	5.45	0.93	33820	5	6	7	6	5	5	4	3
29	446891	5025317	2903	06-14	8	7	5.87	0.91	33820	5	5	6	5	2	2	3	3
29	446891	5025317	B153	06-15	8	7	5.98	0.90	33820	6	6	6	6	5	4	5	5
30	449309	5022651	3001	06-14	23	14	2.40	0.50	36158	7	7	7	6	4	3	3	4
30	449309	5022651	3002	06-14	23	14	2.45	0.50	36158	6	5	6	6	4	1	4	4
30	449309	5022651	3003	06-14	23	14	2.50	0.50	36158	6	7	7	6	6	4	5	5
30	449309	5022651	3004	06-14	23	14	2.54	0.51	36158	6	6	6	6	6	4	5	4
30	449309	5022651	3005	06-14	23	14	2.55	0.51	36158	7	7	6	6	4	4	4	4
30	449309	5022651	3006	06-14	23	14	2.58	0.51	36158	6	6	6	6	4	4	5	5
30	449309	5022651	3007	06-14	23	14	2.60	0.52	36158	6	6	7	6	6	1	3	1
30	449309	5022651	3008	06-14	23	14	2.75	0.55	36158	1	2	7	6	6	4	4	2
30	449309	5022651	3009	06-14	23	14	3.02	0.57	36158	6	6	7	6	6	4	5	3
30	449309	5022651	3010	06-14	23	14	2.96	0.56	36158	6	7	7	7	5	3	5	4
30	449309	5022651	B165	06-14	23	14	2.37	0.47	30673	7	6	6	6	5	5	5	5
31	447412	5021470	3101	06-15	27	12	4.36	1.52	48973	7	6	6	7	7	5	5	5
31	447412	5021470	3102	06-15	27	12	4.18	1.54	48973	5	6	6	6	6	4	5	5
31	447412	5021470	3103	06-15	27	12	4.12	1.56	48973	6	6	5	6	6	4	4	4
31	447412	5021470	3104	06-15	27	12	3.92	1.62	48973	7	7	7	6	3	3	5	4
31	447412	5021470	3105	06-15	27	12	3.92	1.66	48973	7	6	7	6	6	2	5	5
31	447412	5021470	3106	06-15	27	12	4.70	1.47	48973	6	6	6	7	7	5	5	5
31	447412	5021470	3107	06-15	27	12	4.44	1.57	34904	7	7	7	6	6	4	5	5
31	447412	5021470	3108	06-15	27	12	5.01	1.44	48973	6	6	5	5	4	3	4	3
31	447412	5021470	3109	06-15	27	12	5.01	1.44	48973	6	6	6	6	6	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
31	447412	5021470	3110	06-15	27	12	5.02	1.43	48973	6	6	6	7	6	5	4	4
31	447412	5021470	B192	06-15	27	12	4.05	1.58	48973	6	6	5	5	5	3	3	3
31	447412	5021470	B197	06-15	27	12	3.93	1.61	48973	5	5	6	6	4	2	2	2
31	447412	5021470	B198	06-17	27	12	3.94	1.62	48973	6	6	5	3	4	2	4	4
32	444906	5022100	3201	06-15	40	18	3.98	0.09	50388	6	7	7	6	7	4	3	3
32	444906	5022100	3202	06-15	40	18	4.13	0.06	39111	1	6	6	6	5	4	3	3
32	444906	5022100	3203	06-15	40	18	4.04	0.06	39111	6	7	4	5	4	1	4	4
32	444906	5022100	3204	06-15	40	18	4.60	0.24	39111	5	6	7	6	6	5	5	5
32	444906	5022100	3205	06-15	40	18	3.98	0.19	39111	7	7	6	6	4	3	3	2
33	440186	5023966	3301	06-16	11	8	3.98	1.73	49716	7	7	7	7	6	1	5	5
33	440186	5023966	3302	06-16	11	8	3.46	1.81	49716	7	6	6	6	6	2	3	4
33	440186	5023966	3303	06-16	11	8	3.68	1.77	49716	7	7	7	6	5	1	4	4
33	440186	5023966	3304	06-16	11	8	3.98	1.69	49716	7	7	7	6	6	5	5	5
33	440186	5023966	3305	06-16	11	8	3.96	1.66	49716	6	6	7	7	6	5	5	5
33	440186	5023966	3306	06-16	11	8	3.98	1.63	49716	7	7	7	6	7	5	5	5
33	440186	5023966	3307	06-16	11	8	3.97	1.80	63916	6	6	6	6	7	4	5	5
33	440186	5023966	3308	06-16	11	8	3.96	1.82	63916	6	6	6	6	6	3	4	5
33	440186	5023966	3309	06-16	11	8	4.16	1.73	63916	5	5	6	6	5	4	5	5
33	440186	5023966	3310	06-16	11	8	4.13	1.57	49716	6	7	7	7	7	5	3	3
33	440186	5023966	B319	06-17	11	8	4.00	1.62	49716	6	7	5	6	4	4	3	3
33	440186	5023966	B341	06-21	11	8	4.21	1.71	63916	6	7	5	3	2	3	4	3
33	440186	5023966	B342	06-29	11	8	4.23	1.69	63916	4	6	7	7	6	4	4	4
34	438997	5020593	3401	06-16	11	3	3.58	1.74	39059	6	6	6	7	5	5	2	4
34	438997	5020593	3402	06-16	11	3	3.56	1.81	39059	6	6	7	7	6	2	4	5
34	438997	5020593	3403	06-16	11	3	3.62	1.87	39059	5	7	6	6	5	2	3	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
34	438997	5020593	3404	06-16	11	3	3.65	1.91	39059	6	6	7	7	7	4	4	5
34	438997	5020593	3405	06-16	11	3	3.69	1.85	39059	6	6	5	5	5	4	3	4
34	438997	5020593	3406	06-16	11	3	3.55	1.85	39059	4	5	5	4	4	3	5	5
34	438997	5020593	3407	06-16	11	3	3.56	1.85	39059	4	6	7	7	6	5	5	5
34	438997	5020593	3408	06-16	11	3	3.77	1.80	45365	5	6	6	6	6	4	5	5
34	438997	5020593	3409	06-16	11	3	3.84	1.79	45365	6	6	5	6	5	3	4	4
34	438997	5020593	3410	06-16	11	3	3.81	1.78	45365	7	7	7	7	6	4	4	4
34	438997	5020593	B348	06-17	11	3	3.60	1.76	39059	7	7	7	7	6	4	5	5
34	438997	5020593	B362	06-16	11	3	3.70	2.00	39059	6	7	7	7	6	4	5	5
35	449037	5031682	3501	06-19	19	8	4.22	1.43	23734	1	7	1	5	3	3	5	5
35	449037	5031682	3502	06-19	19	8	4.49	1.49	30977	6	5	7	7	7	2	5	5
35	449037	5031682	3503	06-19	19	8	4.44	1.50	30977	7	7	6	6	5	1	4	5
35	449037	5031682	3504	06-19	19	8	4.49	1.50	30977	7	6	6	6	6	4	5	5
35	449037	5031682	3505	06-19	19	8	4.19	1.48	30977	4	4	7	7	6	3	3	3
35	449037	5031682	3506	06-19	19	8	4.00	1.48	30977	6	6	6	5	4	3	4	4
35	449037	5031682	3507	06-19	19	8	3.89	1.48	30977	6	4	6	6	5	1	5	5
35	449037	5031682	3508	06-19	19	8	4.16	1.57	30977	6	7	6	6	6	5	5	5
35	449037	5031682	3509	06-19	19	8	4.10	1.56	30977	7	7	6	6	7	1	4	4
35	449037	5031682	3510	06-19	19	8	3.93	1.56	30977	6	6	7	7	6	4	5	5
35	449037	5031682	B392	06-24	19	8	4.48	1.55	30977	6	6	6	7	5	1	4	4
36	445624	5029485	3601	06-19	14	3	2.30	0.68	23151	6	7	4	6	5	2	5	5
36	445624	5029485	3602	06-19	14	3	2.16	0.88	36220	6	6	6	6	5	3	5	5
36	445624	5029485	B455	06-24	14	3	2.28	0.85	36220	4	5	6	2	2	2	5	5
37	450594	5022241	3701	06-20	19	13	3.19	1.27	37587	6	6	5	6	6	4	4	5
37	450594	5022241	3702	06-20	19	13	3.09	1.32	25645	6	6	7	6	6	5	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
37	450594	5022241	3703	06-20	19	13	3.13	1.28	25645	5	4	5	5	6	4	3	4
37	450594	5022241	3704	06-20	19	13	3.13	1.28	25645	7	6	7	7	6	5	5	4
37	450594	5022241	3705	06-20	19	13	3.63	1.03	37587	6	7	6	6	7	3	4	3
37	450594	5022241	3706	06-20	19	13	3.89	0.96	37587	6	7	6	6	6	4	5	4
37	450594	5022241	3707	06-20	19	13	4.01	0.92	37587	7	7	6	6	3	4	5	4
37	450594	5022241	3708	06-20	19	13	4.12	0.89	37587	7	7	6	5	5	3	5	5
37	450594	5022241	3709	06-20	19	13	3.08	1.26	25645	5	3	2	6	4	1	5	3
37	450594	5022241	3710	06-20	19	13	3.08	1.26	25645	6	5	6	7	5	4	5	4
38	449032	5027102	3801	06-20	32	11	4.64	1.35	58680	6	6	6	6	7	5	5	5
38	449032	5027102	3802	06-20	32	11	5.50	1.43	58680	6	6	7	7	6	5	4	4
38	449032	5027102	3803	06-20	32	11	5.23	1.35	58680	7	7	6	7	7	3	5	5
38	449032	5027102	3804	06-20	32	11	5.13	1.33	58680	6	6	7	7	6	3	4	5
38	449032	5027102	3805	06-20	32	11	4.66	1.28	58680	6	6	6	7	6	4	5	5
38	449032	5027102	3806	06-20	32	11	4.94	1.35	58680	6	6	6	6	6	5	5	4
38	449032	5027102	3807	06-20	32	11	4.87	1.37	58680	5	6	6	7	7	3	5	5
38	449032	5027102	3808	06-20	32	11	6.18	1.45	58680	5	7	7	7	7	4	5	4
38	449032	5027102	3809	06-20	32	11	5.40	1.43	58680	5	6	7	7	6	3	2	4
38	449032	5027102	3810	06-20	32	11	4.95	1.40	58680	5	3	7	4	5	1	4	4
38	449032	5027102	B580	06-21	32	11	7.27	1.52	58680	6	7	7	6	7	4	5	5
38	449032	5027102	B601	06-21	32	11	6.77	1.46	58680	6	6	6	7	6	3	4	4
39	446374	5023581	3901	06-21	28	8	3.30	0.33	41353	7	7	6	7	6	5	5	5
39	446374	5023581	3902	06-21	28	8	3.30	0.33	41353	6	6	7	7	7	5	5	5
39	446374	5023581	3903	06-21	28	8	3.34	0.35	41353	7	4	7	4	5	5	3	3
39	446374	5023581	3904	06-21	28	8	2.97	0.35	62487	6	6	7	7	7	5	5	5
39	446374	5023581	3905	06-21	28	8	2.97	0.35	62487	6	7	5	6	6	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
39	446374	5023581	3906	06-21	28	8	3.02	0.38	62487	5	6	6	6	5	3	4	3
39	446374	5023581	3907	06-21	28	8	3.16	0.42	62487	6	6	7	7	7	5	5	5
39	446374	5023581	3908	06-21	28	8	3.71	0.44	39909	7	7	6	7	6	5	5	5
39	446374	5023581	3909	06-21	28	8	3.74	0.44	39909	6	6	7	7	6	4	4	4
39	446374	5023581	3910	06-21	28	8	3.48	0.47	39909	6	6	7	7	7	5	5	5
39	446374	5023581	B620	07-14	28	8	3.30	0.33	41353	6	6	6	7	6	4	3	4
39	446374	5023581	B655	06-22	28	8	3.58	0.41	39909	5	3	7	7	6	3	4	4
40	441189	5020508	4001	06-21	13	5	3.85	1.72	36702	5	6	4	6	6	3	4	4
40	441189	5020508	4002	06-21	13	5	3.61	1.75	36702	6	6	6	6	7	4	5	5
40	441189	5020508	4003	06-21	13	5	3.60	1.77	36702	6	6	6	6	6	3	5	5
40	441189	5020508	4004	06-21	13	5	3.49	1.77	36702	6	5	6	6	7	2	4	3
40	441189	5020508	4005	06-21	13	5	3.29	1.80	36702	6	7	7	6	5	4	5	5
40	441189	5020508	4006	06-21	13	5	3.22	1.83	36702	7	7	6	6	6	4	4	4
40	441189	5020508	4007	06-21	13	5	2.55	1.84	36702	7	7	7	7	6	4	5	5
40	441189	5020508	4008	06-21	13	5	3.27	1.78	36702	6	6	6	6	6	3	4	5
40	441189	5020508	4009	06-21	13	5	3.21	1.77	36702	1	6	7	2	5	4	5	5
40	441189	5020508	4010	06-21	13	5	3.47	1.73	36702	6	3	6	5	2	2	4	3
40	441189	5020508	4011	06-21	13	5	3.50	1.73	36702	4	1	1	3	4	5	5	5
40	441189	5020508	B671	06-21	13	5	3.45	1.77	36702	6	6	5	5	4	3	5	5
40	441189	5020508	B682	06-22	13	5	2.93	1.84	36702	2	2	4	6	6	4	4	4
41	437351	5023988	4101	06-22	30	13	2.34	0.06	53589	7	7	7	7	7	4	5	5
41	437351	5023988	4102	06-22	30	13	4.10	0.07	53589	6	4	6	7	6	3	3	4
41	437351	5023988	4103	06-22	30	13	3.75	0.09	53589	6	7	7	7	7	5	5	5
41	437351	5023988	4104	06-22	30	13	2.99	0.11	53589	6	6	6	6	7	5	5	5
41	437351	5023988	4105	06-22	30	13	6.00	0.28	53589	7	7	7	7	7	5	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
41	437351	5023988	4106	06-22	30	13	6.12	0.27	53589	6	7	7	7	7	5	5	5
41	437351	5023988	4107	06-22	30	13	5.68	0.13	53589	7	6	6	5	7	4	5	5
41	437351	5023988	4108	06-22	30	13	8.10	0.21	53589	7	7	7	7	7	5	5	5
41	437351	5023988	4109	06-22	30	13	8.24	0.20	53589	7	7	6	7	7	4	4	5
41	437700	5024115	4110	06-22	19	14	8.92	0.17	32199	7	7	7	7	7	4	4	4
41	437351	5023988	B721	06-26	30	13	6.32	0.26	53589	6	7	7	7	7	5	5	5
41	437351	5023988	B733	06-23	30	13	7.88	0.21	53589	6	6	7	7	7	3	5	5
41	437700	5024115	B744	10-01	19	14	9.44	0.16	32199	6	6	7	7	7	5	4	5
42	439912	5022331	4201	06-22	20	9	5.30	2.58	29502	6	6	6	6	7	1	4	4
42	439912	5022331	4202	06-22	20	9	4.63	2.64	29502	7	7	7	6	4	5	5	5
42	439912	5022331	4203	06-22	20	9	2.86	2.71	29502	6	7	7	6	4	2	5	5
42	439912	5022331	4204	06-22	20	9	3.46	2.59	29502	6	5	7	7	6	5	5	4
42	439912	5022331	4205	06-22	20	9	3.31	2.68	29502	5	4	7	7	6	1	4	5
42	439912	5022331	4206	06-22	20	9	3.88	2.60	29502	6	6	7	7	6	4	5	4
42	439912	5022331	4207	06-22	20	9	4.53	2.54	29502	6	6	7	7	6	5	5	5
42	439912	5022331	4208	06-22	20	9	4.79	2.58	29502	6	7	7	6	6	5	4	5
42	439912	5022331	4209	06-22	20	9	3.63	2.67	29502	7	6	4	7	7	5	5	5
42	439912	5022331	4210	06-22	20	9	3.53	2.69	29502	7	7	5	6	6	1	5	5
42	439912	5022331	B757	07-09	20	9	5.13	2.60	29502	3	3	4	5	5	1	2	2
43	446520	5027733	4301	06-28	9	4	3.16	0.40	44891	7	7	7	7	7	5	4	5
43	446520	5027733	4302	06-28	9	4	3.21	0.40	44891	7	7	7	7	6	3	4	5
43	446520	5027733	4303	06-28	9	4	3.09	0.33	44891	6	6	7	6	6	4	4	4
43	446520	5027733	4304	06-28	9	4	3.09	0.33	44891	7	6	7	6	7	5	4	4
43	446520	5027733	4305	06-28	9	4	3.19	0.31	44891	6	5	6	3	5	1	5	5
43	446520	5027733	4306	06-28	9	4	3.93	0.28	44891	7	7	7	6	7	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
43	446520	5027733	4307	06-28	9	4	4.21	0.27	44891	5	5	4	5	3	4	4	3
43	446520	5027733	4308	06-28	9	4	4.13	0.23	52421	4	6	7	5	5	3	3	4
43	446520	5027733	4309	06-28	9	4	3.97	0.23	52421	6	6	7	7	7	5	5	4
43	446520	5027733	4310	06-28	9	4	3.73	0.23	52421	6	6	2	2	2	4	3	3
43	446520	5027733	B807	07-17	9	4	3.95	0.23	52421	6	6	7	7	6	4	5	5
44	447025	5032594	4401	06-28	17	8	4.68	0.69	51452	7	7	7	7	6	4	5	5
44	447025	5032594	4402	06-28	17	8	4.40	0.78	51452	5	6	7	7	7	5	5	5
44	447025	5032594	4403	06-28	17	8	4.39	0.80	51452	6	7	7	7	7	3	4	3
44	447025	5032594	4404	06-28	17	8	4.40	0.77	51452	6	6	7	7	7	4	4	4
44	447025	5032594	4405	06-28	17	8	4.48	0.73	51452	6	6	7	7	6	5	5	5
44	447025	5032594	4406	06-28	17	8	4.48	0.67	51452	5	6	6	6	6	4	3	3
44	447025	5032594	4407	06-28	17	8	4.61	0.68	51452	4	6	7	6	6	3	4	2
44	447025	5032594	4408	06-28	17	8	4.55	0.70	55787	6	6	7	7	7	5	5	5
44	447025	5032594	4409	06-28	17	8	4.51	0.69	51452	6	6	7	7	5	3	3	4
44	447025	5032594	4410	06-28	17	8	4.64	0.74	51452	6	6	7	6	6	2	5	5
44	447025	5032594	B816	06-28	17	8	4.40	0.78	51452	7	7	7	7	6	5	5	5
45	448260	5028018	4501	06-30	55	8	5.02	0.62	56880	6	6	4	5	6	3	5	5
45	448260	5028018	4502	06-30	55	8	4.99	0.58	56880	7	6	6	5	5	4	5	4
45	448260	5028018	4503	06-30	55	8	4.75	0.51	19994	6	6	7	7	6	5	5	5
45	448260	5028018	4504	06-30	55	8	4.86	0.49	19994	5	5	5	3	6	4	5	5
45	448260	5028018	4505	06-30	55	8	4.64	0.46	19994	7	7	7	7	7	5	5	4
45	448260	5028018	4506	06-30	55	8	4.99	0.50	19994	7	7	6	7	6	5	5	5
45	448260	5028018	4507	06-30	55	8	4.87	0.51	19994	7	6	7	7	6	4	5	4
45	448260	5028018	4508	06-30	55	8	4.99	0.63	56880	6	6	7	6	6	3	5	5
46	447983	5024559	4601	06-30	31	6	2.73	1.97	41284	7	7	7	6	4	3	4	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
46	447983	5024559	4602	06-30	31	6	2.69	2.00	41284	6	6	6	6	6	1	3	3
46	447983	5024559	4603	06-30	31	6	2.73	2.00	41284	6	6	7	6	4	2	5	5
46	447983	5024559	4604	06-30	31	6	2.30	2.18	25949	6	6	7	7	6	4	5	5
46	447983	5024559	4605	06-30	31	6	2.30	2.21	25949	6	6	7	6	6	4	5	5
46	447983	5024559	4606	08-16	31	6	2.37	1.86	36401	6	6	7	6	5	3	3	4
46	447983	5024559	4607	08-16	31	6	2.32	1.97	36401	7	7	7	7	6	3	5	5
46	447983	5024559	B905	06-30	31	6	2.55	1.86	33634	4	6	6	6	4	3	4	3
46	447983	5024559	B913	07-02	31	6	2.56	1.97	41284	6	6	5	6	4	1	3	1
47	443843	5019020	4701	07-04	7	4	5.25	1.26	57267	6	6	6	6	6	5	5	4
47	443843	5019020	4702	07-04	7	4	4.34	1.22	57267	7	7	6	7	6	4	5	5
47	443843	5019020	4703	07-04	7	4	4.34	1.06	57267	6	6	6	7	7	5	5	5
47	443843	5019020	4704	07-04	7	4	3.62	1.21	57267	7	7	7	7	7	4	5	4
47	443843	5019020	4705	07-04	7	4	3.34	1.21	57267	6	6	5	6	7	5	5	5
47	443843	5019020	4706	07-04	7	4	3.46	1.15	57267	6	6	5	5	6	3	4	4
47	443843	5019020	4707	07-04	7	4	2.99	1.19	57267	6	6	6	5	7	4	3	4
47	443843	5019020	4708	07-04	7	4	4.98	1.18	48135	6	7	6	7	4	3	4	4
47	443843	5019020	4708	07-04	7	4	4.98	1.18	48135	6	6	6	6	6	5	5	4
47	443843	5019020	4710	07-04	7	4	5.30	1.22	48135	4	2	6	7	6	3	4	2
47	443843	5019020	B950	07-05	7	4	2.55	1.12	57267	6	6	6	7	7	4	5	4
47	443843	5019020	B957	07-04	7	4	3.15	1.18	57267	6	6	7	7	7	5	5	5
48	440704	5020030	4801	07-04	9	5	3.59	2.12	31070	5	6	7	7	5	5	5	5
48	440704	5020030	4802	07-04	9	5	3.13	2.29	31070	6	6	6	5	4	1	2	1
48	440704	5020030	4802	07-04	9	5	3.13	2.29	31070	5	5	6	6	5	3	5	5
48	440704	5020030	4804	07-04	9	5	3.42	2.18	31070	6	6	7	7	7	4	4	4
48	440704	5020030	4805	07-04	9	5	3.77	2.12	31070	6	6	7	7	6	4	3	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
48	440704	5020030	4806	07-04	9	5	3.95	2.04	31070	7	7	7	6	5	2	3	4
48	440704	5020030	4807	07-04	9	5	3.94	2.00	31070	6	6	5	6	6	3	4	4
48	440704	5020030	4808	07-04	9	5	3.92	1.91	34761	6	7	6	5	5	2	3	4
48	440704	5020030	4809	07-04	9	5	4.12	1.97	34761	7	7	1	4	7	4	5	2
48	440704	5020030	4810	07-04	9	5	4.09	2.01	34761	6	7	6	6	5	3	3	2
49	443593	5027323	4901	07-05	6	3	5.38	1.11	68044	6	6	7	5	6	3	5	5
49	443593	5027323	4902	07-05	6	3	5.64	1.07	68044	6	7	6	6	7	3	4	5
49	443593	5027323	4903	07-05	6	3	5.53	1.13	68044	5	2	6	3	6	4	5	3
49	443593	5027323	4904	07-05	6	3	5.78	1.07	68044	6	6	7	7	6	5	5	5
49	443593	5027323	4905	07-05	6	3	5.64	1.04	67218	6	6	7	7	7	5	5	5
49	443593	5027323	4906	07-05	6	3	5.58	1.13	68044	6	6	7	7	7	5	5	5
49	443593	5027323	4907	07-05	6	3	5.39	1.20	68044	7	6	7	6	6	4	4	4
49	443593	5027323	4908	07-05	6	3	5.34	1.19	68044	6	6	3	6	5	4	4	3
49	443593	5027323	4909	07-05	6	3	5.00	1.26	68044	6	6	6	6	6	4	5	5
49	443593	5027323	4910	07-05	6	3	5.09	1.18	68044	6	7	7	7	6	1	3	4
49	443593	5027323	C035	07-05	6	3	5.55	1.06	68044	4	6	6	6	6	2	5	3
49	443593	5027323	C055	07-05	6	3	5.68	1.04	67218	6	6	7	7	6	4	4	4
50	442600	5024465	5001	07-05	9	3	2.79	2.26	37211	5	4	6	7	7	5	5	4
50	442600	5024465	5002	07-05	9	3	2.40	2.22	37211	7	7	7	7	7	5	5	5
50	442600	5024465	5003	07-05	9	3	2.69	2.26	37211	6	7	6	6	5	3	3	4
50	442600	5024465	5004	07-05	9	3	2.77	2.27	37211	6	4	7	6	3	3	4	5
50	442600	5024465	5005	07-05	9	3	3.02	2.32	37211	6	7	6	5	4	3	5	4
50	442600	5024465	5006	07-05	9	3	3.16	2.31	36947	7	7	6	6	6	3	4	4
50	442600	5024465	5007	07-05	9	3	3.14	2.31	36947	5	6	6	6	6	5	4	4
50	442600	5024465	5008	07-05	9	3	2.78	2.33	37211	6	6	6	6	3	4	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
50	442600	5024465	5009	07-05	9	3	2.78	2.33	37211	6	7	6	5	5	3	4	4
50	442600	5024465	5010	07-05	9	3	2.77	2.32	37211	7	7	6	6	5	3	5	5
50	442600	5024465	C094	07-20	9	3	2.59	2.24	37211	5	5	7	7	4	3	4	3
50	442600	5024465	C099	07-05	9	3	2.91	2.31	37211	6	5	6	5	4	3	4	4
50	442600	5024465	C102	07-06	9	3	2.94	2.34	37211	6	6	7	7	7	3	5	5
50	442600	5024465	C104	09-10	9	3	2.94	2.34	37211	7	7	6	6	6	4	4	2
51	449761	5032427	5101	07-06	5	4	5.82	1.87	28986	6	7	6	7	7	4	5	5
51	449761	5032427	5102	07-06	5	4	5.82	1.87	28986	4	4	1	1	4	4	5	5
51	449761	5032427	5103	07-06	5	4	5.82	1.87	28986	7	6	5	2	4	4	3	2
51	449761	5032427	5104	07-06	5	4	5.82	1.87	28986	6	6	7	6	6	5	5	5
51	449761	5032427	5105	07-06	5	4	5.89	2.06	36156	6	5	4	6	6	3	4	4
51	449761	5032427	5106	07-06	5	4	3.09	2.15	30059	3	5	5	6	5	2	5	5
51	449761	5032427	5107	07-06	5	4	3.16	2.17	30059	4	3	6	6	4	1	2	3
51	449761	5032427	C145	07-07	5	4	5.82	1.87	28986	6	6	3	7	6	3	5	5
52	446561	5030410	5201	07-06	8	3	3.32	0.58	22628	5	6	5	6	5	3	3	4
52	446561	5030410	5202	07-06	8	3	3.00	0.50	19133	6	6	7	7	6	4	5	5
52	446561	5030410	5203	07-06	8	3	3.00	0.50	19133	6	5	7	6	4	3	3	3
52	446561	5030410	5204	07-06	8	3	3.00	0.50	19133	2	6	5	6	6	5	5	5
52	446561	5030410	5205	07-06	8	3	3.00	0.50	19133	5	5	5	3	4	3	5	5
52	446561	5030410	5206	07-06	8	3	3.31	0.62	22628	7	7	7	7	7	1	5	5
52	446561	5030410	5207	07-06	8	3	3.21	0.59	22628	4	6	6	6	6	3	4	3
52	446561	5030410	5208	07-06	8	3	3.19	0.60	22628	6	7	5	5	6	3	4	5
52	446561	5030410	5209	07-06	8	3	3.43	0.70	31235	6	6	5	5	6	5	5	3
52	446561	5030410	5210	07-06	8	3	3.39	0.69	31235	6	5	7	6	5	4	2	4
52	446561	5030410	C188	07-06	8	3	3.38	0.58	22628	5	6	5	5	5	1	3	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
52	446561	5030410	C194	07-06	8	3	3.16	0.47	19133	5	3	6	6	6	2	5	5
52	446561	5030410	C238	07-06	8	3	3.43	0.58	19133	6	6	6	6	5	3	5	5
53	452062	5025064	5301	07-07	13	5	2.69	3.82	39132	5	4	3	5	2	4	5	5
53	452062	5025064	5302	07-07	13	5	2.74	3.79	39132	6	6	6	6	6	4	3	3
53	452062	5025064	5303	07-07	13	5	2.83	3.77	39132	6	6	7	7	7	3	5	5
53	452062	5025064	5304	07-07	13	5	3.21	3.73	39132	6	6	6	6	6	5	5	4
53	452062	5025064	5307	07-07	13	5	3.37	3.80	39132	1	7	4	6	7	4	5	5
53	452062	5025064	5308	07-07	13	5	3.36	3.79	39132	6	7	5	7	7	5	5	5
53	452062	5025064	5309	07-07	13	5	3.58	3.74	39132	6	6	6	7	7	4	4	5
53	452062	5025064	5310	07-07	13	5	3.61	3.68	39132	7	7	2	7	6	4	5	5
54	452445	5031780	5401	07-07	12	8	5.13	2.92	43099	6	6	7	6	5	2	4	2
54	452445	5031780	5402	07-07	12	8	4.81	2.95	43099	7	7	6	7	7	4	5	5
54	452445	5031780	5403	07-07	12	8	4.63	3.00	43099	4	5	7	6	7	4	5	5
54	452445	5031780	5404	07-07	12	8	3.99	3.06	43099	5	6	5	5	6	5	5	4
54	452445	5031780	5405	07-07	12	8	5.29	2.82	43099	6	6	5	5	4	4	5	4
54	452445	5031780	5405	07-07	12	8	5.29	2.82	43099	6	6	6	5	6	5	5	4
54	452445	5031780	5406	07-07	12	8	5.34	2.76	43099	7	6	6	6	5	3	3	4
54	452445	5031780	5406	07-07	12	8	5.34	2.76	43099	7	7	7	6	6	5	5	5
54	452445	5031780	5407	07-07	12	8	5.40	2.74	43099	6	6	5	6	4	3	4	5
54	452445	5031780	5408	07-07	12	8	5.25	2.77	43099	7	7	6	7	4	1	5	5
54	452445	5031780	5409	07-07	12	8	5.20	2.76	43099	6	6	6	7	5	1	4	4
54	452445	5031780	5410	07-07	12	8	5.38	2.70	43099	6	6	6	5	5	4	5	5
55	443717	5023735	5501	07-10	8	6	3.04	1.57	40983	7	7	7	7	6	4	4	5
55	443717	5023735	5502	07-10	8	6	3.08	1.50	40983	7	7	7	7	6	5	5	3
55	443717	5023735	5503	07-10	8	6	3.14	1.43	40983	6	6	6	6	7	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
55	443717	5023735	5504	07-10	8	6	3.12	1.51	40983	7	7	6	6	5	3	5	3
55	443717	5023735	5505	07-10	8	6	3.11	1.53	40983	7	7	7	7	6	5	5	5
55	443717	5023735	5506	07-10	8	6	3.09	1.39	41738	6	6	7	7	6	5	5	5
55	443717	5023735	5507	07-10	8	6	3.09	1.37	41738	6	6	5	7	6	1	5	5
55	443717	5023735	5508	07-10	8	6	3.20	1.29	41738	6	6	5	6	5	1	5	4
55	443717	5023735	5509	07-10	8	6	3.25	1.34	40983	5	5	3	6	4	4	5	5
55	443717	5023735	5509	07-10	8	6	3.25	1.34	40983	6	6	6	6	6	3	3	3
55	443717	5023735	5510	07-10	8	6	3.35	1.35	40983	5	3	3	6	6	4	5	5
56	442299	5022060	5601	07-10	6	3	2.94	2.16	27413	5	7	6	6	6	4	5	5
56	442299	5022060	5602	07-10	6	3	3.39	2.15	27413	2	6	5	5	7	1	2	1
56	442299	5022060	5603	07-10	6	3	3.61	2.13	27413	6	7	6	7	4	3	5	5
56	442299	5022060	5604	07-10	6	3	3.48	2.12	27413	6	7	6	6	5	3	4	4
56	442299	5022060	5605	07-10	6	3	3.46	2.19	45611	6	6	7	7	6	3	4	5
56	442299	5022060	5606	07-10	6	3	3.47	2.19	45611	6	5	6	6	4	5	5	4
56	442299	5022060	5607	07-10	6	3	3.59	2.20	45611	5	6	5	6	4	5	1	2
56	442299	5022060	5608	07-10	6	3	3.51	2.21	45611	6	6	5	6	5	3	4	4
56	442299	5022060	5609	07-10	6	3	3.34	2.24	45611	7	7	6	5	4	4	5	4
56	442299	5022060	5610	07-10	6	3	3.49	2.24	45611	6	6	6	5	4	3	4	2
57	441622	5023337	5701	07-11	12	4	3.23	3.22	24644	7	7	7	6	6	4	5	5
57	441622	5023337	5702	07-11	12	4	3.45	3.12	42830	7	7	7	7	7	4	5	5
57	441622	5023337	5703	07-11	12	4	2.78	3.19	35603	5	7	4	5	5	4	4	5
57	441622	5023337	5704	07-11	12	4	2.78	3.19	35603	5	5	7	7	7	4	5	5
57	441622	5023337	5705	07-11	12	4	2.99	3.33	24644	6	7	7	5	3	1	5	4
57	441622	5023337	5706	07-11	12	4	2.78	3.19	35603	7	7	5	7	6	4	4	5
57	441622	5023337	5707	07-11	12	4	2.78	3.19	35603	6	7	7	6	6	3	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
57	441622	5023337	5708	07-11	12	4	3.29	3.21	24644	6	7	7	7	6	4	5	4
57	441622	5023337	5709	07-11	12	4	3.30	3.23	24644	6	7	5	4	4	2	5	5
57	441622	5023337	5710	07-11	12	4	3.05	3.34	24644	7	6	6	6	4	4	5	5
58	443123	5026198	5801	07-11	6	3	4.21	1.85	43026	6	7	6	5	2	1	3	3
58	443123	5026198	5802	07-11	6	3	4.36	1.87	43026	7	7	7	7	6	1	5	5
58	443123	5026198	5803	07-11	6	3	4.34	1.86	43026	2	1	7	7	5	4	5	3
58	443123	5026198	5804	07-11	6	3	4.12	1.82	42730	7	7	7	6	6	4	5	5
58	443123	5026198	5805	07-11	6	3	4.44	1.87	42730	7	7	7	7	4	3	5	5
58	443123	5026198	5806	07-11	6	3	4.62	1.89	43026	1	7	7	7	6	3	4	5
58	443123	5026198	5807	07-11	6	3	4.60	1.90	43026	6	6	6	7	6	3	5	4
58	443123	5026198	5809	07-11	6	3	4.46	1.91	43026	6	6	6	7	6	4	4	5
58	443123	5026198	5810	07-11	6	3	4.54	1.98	43026	6	6	7	7	6	5	5	5
58	443123	5026198	C464	07-11	6	3	4.25	1.86	43026	6	6	6	6	5	4	5	5
59	447730	5031727	5901	07-12	6	4	2.99	0.36	45400	6	7	6	6	6	5	5	5
59	447730	5031727	5902	07-12	6	4	3.12	0.25	45400	6	5	7	7	6	5	5	5
59	447730	5031727	5903	07-12	6	4	2.97	0.37	45400	6	7	7	5	3	3	5	5
59	447730	5031727	5904	07-12	6	4	2.95	0.54	17133	6	5	6	3	3	3	5	5
59	447730	5031727	5905	07-12	6	4	2.80	0.55	17133	6	6	6	5	3	3	4	4
59	447730	5031727	5906	07-12	6	4	2.74	0.47	17133	6	6	5	5	4	3	5	5
59	447730	5031727	5907	07-12	6	4	2.85	0.39	17133	7	6	4	4	3	3	5	3
59	447730	5031727	5908	07-12	6	4	3.53	0.16	43444	6	6	7	6	6	5	5	4
59	447730	5031727	5909	07-12	6	4	3.54	0.16	43444	6	7	6	7	6	5	5	4
59	447730	5031727	5910	07-12	6	4	3.20	0.13	43444	6	6	6	6	7	5	5	5
59	447730	5031727	C522	07-14	6	4	3.03	0.32	45400	6	7	6	6	5	4	4	4
59	447730	5031727	C543	07-27	6	4	2.97	0.36	45400	6	6	6	6	6	4	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
60	451620	5034379	6001	07-12	8	4	8.90	0.44	71658	6	7	7	7	6	3	5	5
60	451620	5034379	6002	07-12	8	4	9.35	0.40	71658	7	7	7	7	7	4	5	5
60	451620	5034379	6003	07-12	8	4	8.25	0.41	71658	7	7	6	5	7	5	4	4
60	451620	5034379	6004	07-12	8	4	8.02	0.22	71658	6	7	7	7	6	3	5	5
60	451620	5034379	6005	07-12	8	4	8.18	0.25	71658	6	6	7	6	6	4	5	5
60	451620	5034379	6006	07-12	8	4	8.23	0.32	71658	4	4	6	6	7	3	3	1
60	451620	5034379	6007	07-12	8	4	8.67	0.24	71658	6	6	6	7	7	5	5	4
60	451620	5034379	6008	07-12	8	4	8.75	0.32	71658	6	6	7	7	6	3	4	4
60	451620	5034379	6009	07-12	8	4	9.27	0.34	71658	7	7	7	7	7	4	5	5
60	451620	5034379	6010	07-12	8	4	9.10	0.24	71658	6	6	6	6	7	4	5	5
61	450469	5024097	6101	07-13	5	3	3.40	2.09	27727	6	6	6	6	4	5	5	5
61	450469	5024097	6102	07-13	5	3	3.35	2.08	27727	6	6	5	6	7	5	5	5
61	450469	5024097	6103	07-13	5	3	3.23	2.02	27727	6	6	6	7	7	4	5	5
61	450469	5024097	6104	07-13	5	3	3.21	2.01	27727	7	6	7	3	6	4	5	5
61	450469	5024097	6105	07-13	5	3	5.00	2.09	27727	7	7	7	6	6	4	5	4
61	450469	5024097	6106	07-13	5	3	4.94	2.24	27727	7	6	6	6	6	4	4	5
61	450469	5024097	6107	07-13	5	3	5.05	2.30	27727	6	2	5	5	4	1	4	4
61	450469	5024097	6108	07-13	5	3	5.60	2.25	27727	5	6	6	7	6	4	5	5
61	450469	5024097	6109	07-13	5	3	3.36	2.12	34107	6	7	6	3	2	2	4	4
61	450469	5024097	6110	07-13	5	3	3.39	2.15	34107	6	7	3	3	4	1	5	4
61	450469	5024097	C645	07-15	5	3	3.86	2.12	27727	6	6	4	6	6	4	5	5
61	450469	5024097	C690	07-13	5	3	4.80	2.26	27727	6	6	5	7	6	4	4	2
62	451062	5029559	6201	07-13	4	3	2.61	2.63	40111	5	6	3	3	3	4	4	3
62	451062	5029559	6202	07-13	4	3	2.64	2.68	40111	7	6	7	7	4	1	5	5
62	451062	5029559	6203	07-13	4	3	2.66	2.67	40111	7	7	7	6	7	4	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
62	451062	5029559	6204	07-13	4	3	2.77	2.75	40111	6	6	6	5	5	1	4	2
62	451062	5029559	C778	08-05	4	3	2.49	2.79	40111	1	2	5	7	7	3	4	4
63	445016	5019793	6301	07-14	12	7	4.37	0.05	50388	6	7	6	6	6	1	5	4
63	445016	5019793	6302	07-14	12	7	3.93	0.06	50388	4	4	4	4	6	5	5	5
63	445016	5019793	6303	07-14	12	7	4.89	0.05	50388	7	7	7	7	7	5	5	4
63	445016	5019793	6304	07-14	12	7	5.44	0.05	50388	7	7	7	7	7	4	5	5
63	445016	5019793	6305	07-14	12	7	5.01	0.15	50388	6	6	4	6	6	4	5	4
63	445016	5019793	6306	07-14	12	7	5.12	0.21	50388	7	7	7	6	6	4	5	5
63	445016	5019793	C793	07-15	12	7	4.41	0.03	50388	7	7	7	7	7	5	5	5
64	445255	5023779	6401	07-14	29	9	3.76	0.21	24333	5	5	7	7	7	4	5	5
64	445255	5023779	6402	07-14	29	9	3.93	0.19	24333	6	6	6	7	7	5	5	5
64	445255	5023779	6403	07-14	29	9	3.85	0.16	24333	6	6	5	7	6	5	5	5
64	445255	5023779	6404	07-14	29	9	4.82	0.12	24333	6	3	4	7	4	5	5	5
64	445255	5023779	6405	07-14	29	9	5.35	0.20	24333	6	6	6	7	6	4	4	5
64	445255	5023779	6406	07-14	29	9	4.93	0.25	24333	7	7	6	7	6	4	5	4
64	445255	5023779	6407	07-14	29	9	5.01	0.23	24333	6	6	5	6	7	4	4	4
64	445255	5023779	6408	07-14	29	9	5.06	0.19	24333	7	7	7	7	6	3	5	3
64	445255	5023779	6409	07-14	29	9	4.84	0.14	24333	6	2	7	7	6	3	5	5
64	445255	5023779	6410	07-14	29	9	4.48	0.17	24333	6	6	6	6	7	5	5	5
64	445255	5023779	C839	07-17	29	9	5.08	0.21	24333	6	6	6	7	7	4	5	4
65	440627	5026701	6501	07-17	2	2	3.86	0.38	54062	7	4	5	4	4	1	2	4
65	440627	5026701	6502	07-17	2	2	4.60	0.30	54062	5	6	5	6	6	4	5	4
65	440627	5026701	6503	07-17	2	2	4.70	0.30	54062	6	6	6	5	5	4	5	4
65	440627	5026701	6504	07-17	2	2	4.28	0.34	54062	7	7	7	6	6	3	4	5
65	440627	5026701	6505	07-17	2	2	4.42	0.33	54062	7	7	7	7	7	4	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
65	440627	5026701	6506	07-17	2	2	4.48	0.30	54062	6	6	6	6	6	4	4	4
65	440627	5026701	6507	07-17	2	2	4.67	0.28	54062	6	6	6	7	7	4	5	5
65	440627	5026701	6508	07-17	2	2	5.06	0.24	54062	7	7	7	6	7	5	5	4
65	440627	5026701	6509	07-17	2	2	4.58	0.27	54062	7	7	6	7	5	4	4	5
65	440627	5026701	6510	07-17	2	2	4.66	0.26	54062	6	6	6	3	6	5	5	5
65	440627	5026701	C851	07-27	2	2	4.35	0.32	54062	6	7	6	5	5	4	5	5
65	440627	5026701	C904	07-19	2	2	5.21	0.26	54062	6	6	7	7	7	5	5	4
65	440627	5026701	C984	07-17	2	2	4.48	0.32	54062	6	6	7	7	7	5	5	5
66	438960	5024758	6601	07-17	8	4	3.27	0.45	45431	7	5	6	7	7	5	5	5
66	438960	5024758	6602	07-17	8	4	3.28	0.43	45431	7	7	7	6	6	4	4	4
66	438960	5024758	6603	07-17	8	4	3.35	0.43	41825	7	6	7	6	6	5	5	5
66	438960	5024758	6604	07-17	8	4	3.46	0.54	45431	7	6	7	6	6	5	5	4
66	438960	5024758	6605	07-17	8	4	3.40	0.55	45431	6	7	7	7	7	3	5	5
66	438960	5024758	6606	07-17	8	4	3.52	0.49	45431	7	7	6	6	3	3	5	5
66	438960	5024758	6607	07-17	8	4	3.41	0.48	45431	5	6	6	6	5	4	4	4
66	438960	5024758	6608	07-18	8	4	3.30	0.46	45431	7	7	7	7	4	2	5	4
67	449385	5030658	6701	07-18	18	11	4.05	1.56	18602	4	6	5	6	4	3	5	2
67	449385	5030658	6702	07-18	18	11	4.24	1.46	18602	4	4	6	4	4	3	5	5
67	449385	5030658	6703	07-18	18	11	4.02	1.54	35561	6	6	6	7	6	4	5	5
67	449385	5030658	6704	07-18	18	11	3.96	1.59	35561	6	7	5	3	1	2	5	5
67	449385	5030658	6705	07-18	18	11	3.85	1.59	35561	7	7	7	6	7	4	5	5
67	449385	5030658	6706	07-18	18	11	3.90	1.78	26481	6	6	6	5	4	4	4	5
67	449385	5030658	6707	07-18	18	11	4.22	1.40	18602	6	5	2	4	2	1	4	4
67	449385	5030658	6708	08-17	18	11	4.04	1.67	35561	7	7	7	7	4	3	5	5
67	449385	5030658	6708	08-17	18	11	4.04	1.67	35561	7	6	7	7	6	1	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
67	449385	5030658	6709	08-17	18	11	4.31	1.36	18602	4	3	1	1	1	1	4	4
67	449385	5030658	6710	07-18	18	11	4.23	1.42	18602	3	3	7	7	6	4	5	5
67	449385	5030658	C980	07-21	18	11	4.00	1.62	35561	7	6	7	7	5	3	4	5
67	449385	5030658	D019	07-18	18	11	3.78	1.81	26481	6	7	6	3	2	3	4	3
68	444771	5028207	6801	07-18	6	3	3.10	0.94	41047	4	5	5	3	2	2	2	3
68	444771	5028207	6802	07-18	6	3	2.77	0.81	41047	6	6	1	6	4	4	5	5
68	444771	5028207	6803	07-18	6	3	2.79	0.81	18592	5	7	5	6	5	4	4	3
68	444771	5028207	6804	07-18	6	3	2.80	0.79	18592	6	6	6	5	5	3	4	4
68	444771	5028207	6805	07-18	6	3	2.51	0.86	18592	7	7	5	6	4	2	4	4
68	444771	5028207	6806	08-16	6	3	2.46	0.87	18592	1	7	2	4	3	2	4	4
68	444771	5028207	6807	08-16	6	3	2.53	0.95	19228	6	7	7	5	4	3	3	4
68	444771	5028207	6808	08-16	6	3	2.65	0.97	19228	3	1	4	4	6	5	5	5
68	444771	5028207	6809	08-16	6	3	2.87	0.82	18592	7	7	7	6	6	3	5	5
68	444771	5028207	6810	07-18	6	3	2.87	0.82	18592	6	6	6	6	4	1	4	3
68	444771	5028207	D093	07-25	6	3	2.84	0.77	18592	5	3	5	3	2	3	5	4
68	444771	5028207	D099	07-18	6	3	2.47	0.86	18592	7	7	7	7	6	3	4	3
68	444771	5028207	E758	09-30	6	3	2.76	0.93	41047	6	7	2	2	1	2	5	4
69	452769	5033065	6901	07-19	8	5	9.83	1.53	58634	5	3	7	7	6	5	4	4
69	452769	5033065	6902	07-19	8	5	9.07	1.60	58634	4	4	3	6	6	3	5	5
69	452769	5033065	6903	07-19	8	5	8.82	1.63	58634	7	6	7	7	6	5	4	4
69	452769	5033065	6904	07-19	8	5	7.38	1.71	58634	6	6	6	7	6	5	5	5
69	452769	5033065	6905	07-19	8	5	7.53	1.70	58634	6	6	6	6	6	4	4	5
69	452769	5033065	6906	07-19	8	5	8.71	1.64	58634	7	6	7	7	7	5	4	4
69	452769	5033065	6907	07-19	8	5	7.41	1.80	27787	7	7	6	7	6	5	5	5
69	452769	5033065	6908	07-19	8	5	6.81	1.79	27787	7	6	6	7	6	4	4	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
69	452769	5033065	6909	07-19	8	5	6.34	1.79	27787	6	7	6	7	6	5	5	5
69	452769	5033065	6910	07-19	8	5	6.75	1.76	27787	3	7	6	5	6	5	5	4
69	452769	5033065	D126	07-20	8	5	8.93	1.62	58634	6	6	7	7	6	1	3	3
69	452769	5033065	D127	07-19	8	5	9.34	1.59	58634	5	6	7	6	4	2	2	2
70	453404	5033746	7001	07-19	18	9	4.73	0.98	45563	6	6	6	7	5	3	4	4
70	453404	5033746	7002	07-19	18	9	4.53	1.10	45563	6	6	6	6	7	4	5	4
70	453404	5033746	7003	07-19	18	9	5.10	1.08	45563	7	7	7	6	7	2	5	5
70	453404	5033746	7004	07-19	18	9	5.16	1.08	45563	6	7	7	7	7	1	4	3
70	453404	5033746	7005	07-19	18	9	4.97	0.98	45563	6	6	7	5	5	1	5	5
70	453404	5033746	7006	07-19	18	9	4.86	0.96	45563	6	6	6	6	5	3	4	5
70	453404	5033746	7007	07-19	18	9	5.01	0.99	45563	7	7	6	7	6	4	5	4
70	453404	5033746	7008	07-19	18	9	5.05	1.01	45563	6	6	7	7	7	4	5	5
70	453404	5033746	7009	07-19	18	9	5.20	1.08	45563	6	7	7	7	6	4	5	5
70	453404	5033746	7010	07-19	18	9	5.24	1.19	45563	6	5	7	6	7	5	4	5
70	453404	5033746	D143	07-24	18	9	4.87	0.96	45563	6	6	6	6	6	3	4	4
70	453404	5033746	D163	07-28	18	9	5.13	1.13	45563	5	3	6	7	5	3	4	3
70	453404	5033746	D169	07-20	18	9	5.10	1.05	45563	5	6	7	6	6	3	3	3
71	443620	5021994	7101	07-20	7	5	2.86	1.31	30739	6	6	7	7	7	5	5	5
71	443620	5021994	7102	07-20	7	5	2.66	1.26	30739	7	7	7	6	6	5	5	5
71	443620	5021994	7103	07-20	7	5	3.16	1.39	30739	6	6	7	6	4	3	4	4
71	443620	5021994	7104	07-20	7	5	2.70	1.42	30739	6	7	5	7	6	4	5	4
71	443620	5021994	7105	07-20	7	5	2.54	1.45	30739	5	6	7	7	6	5	5	5
71	443620	5021994	7106	07-20	7	5	2.98	1.44	30739	6	7	7	6	6	5	5	5
71	443620	5021994	7107	07-20	7	5	2.89	1.32	30739	6	5	6	6	5	2	3	3
71	443620	5021994	7108	07-20	7	5	2.90	1.33	30739	7	7	6	6	5	2	4	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
71	443620	5021994	7109	07-20	7	5	2.87	1.35	30739	3	5	6	6	5	4	5	4
71	443620	5021994	7110	07-20	7	5	2.99	1.47	50594	7	7	7	6	6	4	5	4
72	439065	5022161	7201	07-20	30	12	3.18	2.24	48923	7	7	6	6	5	5	5	4
72	439065	5022161	7202	07-20	30	12	3.24	2.24	48923	7	7	7	7	6	4	5	4
72	439065	5022161	7203	07-20	30	12	3.12	2.37	48923	7	7	7	6	6	2	5	5
72	439065	5022161	7204	07-20	30	12	3.41	2.32	48923	7	7	7	7	5	5	5	4
72	439065	5022161	7205	07-20	30	12	3.12	2.37	48923	7	6	7	6	6	4	4	5
72	439065	5022161	7206	07-20	30	12	3.28	2.40	48923	7	6	7	7	5	3	3	4
72	439065	5022161	7207	07-20	30	12	2.91	2.48	29502	6	6	7	6	5	5	5	5
72	439065	5022161	7208	07-20	30	12	3.02	2.22	48923	6	4	5	3	5	1	4	3
72	439065	5022161	7209	07-20	30	12	2.80	2.12	33254	7	6	6	7	5	1	3	3
72	439065	5022161	7210	07-20	30	12	3.51	2.20	48923	2	2	6	6	6	1	3	4
72	439065	5022161	7211	07-20	30	12	3.51	2.20	48923	6	6	7	6	6	5	4	4
72	439065	5022161	D242	07-29	30	12	3.53	2.26	48923	7	7	7	7	6	3	5	4
72	439065	5022161	D258	07-21	30	12	3.75	2.42	48923	7	7	7	7	6	3	4	5
72	439065	5022161	D277	07-20	30	12	2.94	2.33	29502	6	6	6	7	6	4	5	5
73	438115	5022350	7301	07-21	37	12	3.69	1.46	39124	6	6	5	6	5	4	5	5
73	438115	5022350	7302	07-21	37	12	4.10	1.48	46273	6	6	7	7	6	1	1	1
73	438115	5022350	7303	07-21	37	12	4.17	1.42	46273	6	7	6	7	6	3	4	4
73	438115	5022350	7304	07-21	37	12	4.20	1.39	46273	6	6	7	7	6	4	5	5
73	438115	5022350	7305	07-21	37	12	4.35	1.38	46273	7	6	6	7	7	1	4	4
73	438115	5022350	7306	07-21	37	12	4.22	1.44	46273	6	6	7	7	7	4	5	4
73	438115	5022350	7307	07-21	37	12	4.41	1.27	46273	5	5	5	4	4	1	3	3
73	438115	5022350	7308	07-21	37	12	3.47	1.39	39124	6	6	5	5	4	4	5	4
73	438115	5022350	7309	07-21	37	12	3.70	1.29	17848	7	6	6	6	6	5	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
73	438115	5022350	D322	07-25	37	12	4.18	1.41	46273	6	6	7	7	6	3	4	3
73	438115	5022350	D335	07-22	37	12	4.50	1.35	46273	2	2	6	7	7	5	5	5
74	437416	5021414	7401	07-21	20	8	3.81	1.49	44024	7	7	7	6	5	4	5	5
74	437416	5021414	7402	07-21	20	8	4.06	1.61	73492	6	7	7	6	7	1	5	4
74	437416	5021414	7403	07-21	20	8	4.26	1.58	73492	7	7	6	7	6	4	5	5
74	437416	5021414	7404	07-21	20	8	4.25	1.60	73492	7	7	6	6	6	1	5	5
74	437416	5021414	7405	07-21	20	8	4.10	1.55	73492	6	6	7	5	6	3	4	4
74	437416	5021414	7406	07-21	20	8	4.14	1.54	73492	7	7	6	6	5	2	4	4
74	437416	5021414	7407	07-21	20	8	3.89	1.48	56665	6	7	7	7	6	1	3	3
74	437416	5021414	7408	07-21	20	8	4.20	1.45	56665	4	6	7	6	7	4	5	4
74	437416	5021414	7409	07-21	20	8	4.33	1.45	56665	4	3	6	5	6	4	5	5
74	437416	5021414	7410	07-21	20	8	3.90	1.43	56665	5	6	6	6	6	5	5	4
74	437416	5021414	D412	07-21	20	8	3.78	1.50	44024	6	6	6	7	6	4	4	5
75	448184	5031151	7501	07-25	30	6	2.65	0.63	20086	6	6	6	6	4	2	3	4
75	448184	5031151	7502	07-25	30	6	2.43	0.70	20086	7	6	6	6	6	3	5	4
75	448184	5031151	7503	07-25	30	6	2.60	0.65	20086	6	6	6	6	6	4	5	4
75	448184	5031151	7504	07-25	30	6	2.36	0.68	20086	5	5	4	4	4	2	4	3
75	448184	5031151	7505	07-25	30	6	2.47	0.62	20086	6	6	5	6	4	1	3	3
75	448184	5031151	7506	08-17	30	6	2.61	0.66	36331	6	6	3	3	4	1	5	5
75	448184	5031151	7507	08-17	30	6	2.41	0.44	37107	4	6	4	6	3	5	4	4
75	448184	5031151	7508	08-17	30	6	2.29	0.40	37107	5	3	6	3	5	5	5	5
75	448184	5031151	7509	08-17	30	6	2.23	0.38	37107	6	6	1	1	3	1	4	5
75	448184	5031151	7510	08-17	30	6	2.56	0.77	24987	6	4	6	6	6	4	4	4
75	448184	5031151	E841	09-18	30	6	2.14	0.41	37107	7	7	7	3	2	3	5	5
76	447299	5026372	7601	07-26	8	7	4.89	0.23	18552	6	6	6	6	6	5	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
76	447299	5026372	7602	07-26	8	7	5.49	0.25	18552	6	7	7	7	4	2	1	3
76	447299	5026372	7603	07-26	8	7	5.52	0.51	36260	7	7	6	6	4	3	5	3
76	447299	5026372	7604	07-26	8	7	6.19	0.44	36260	7	6	7	7	7	4	5	5
76	447299	5026372	7605	07-26	8	7	5.82	0.44	36260	6	7	5	5	6	4	3	3
76	447299	5026372	D440	07-30	8	7	5.01	0.32	18552	6	6	7	6	6	3	2	2
77	449404	5029559	7701	07-26	30	10	4.21	1.31	34459	6	7	6	6	6	3	5	5
77	449404	5029559	7702	07-26	30	10	4.09	1.26	34459	6	6	7	7	7	5	5	4
77	449404	5029559	7703	07-26	30	10	3.86	1.22	34459	7	7	7	7	6	2	5	5
77	449404	5029559	7704	07-26	30	10	4.13	1.38	34459	4	6	7	7	4	4	5	3
77	449404	5029559	7705	07-26	30	10	4.25	1.38	34459	7	7	6	6	4	4	4	5
77	449404	5029559	7706	07-26	30	10	4.83	1.38	34459	6	6	6	6	5	2	4	5
77	449404	5029559	7707	07-26	30	10	4.34	1.38	34459	5	5	6	4	6	2	5	5
77	449404	5029559	7708	07-26	30	10	4.73	1.42	34459	6	5	6	6	5	5	5	5
77	449404	5029559	D484	07-31	30	10	3.86	1.27	34459	7	7	6	5	4	2	3	2
77	449404	5029559	D487	07-31	30	10	3.96	1.30	34459	7	6	7	6	6	4	5	4
78	446718	5022959	7802	07-27	13	8	3.49	0.60	43679	6	7	7	7	6	4	5	5
78	446718	5022959	7803	07-27	13	8	3.42	0.56	43679	6	6	6	6	6	4	4	4
78	446718	5022959	7804	07-27	13	8	3.39	0.62	43679	6	6	7	7	6	2	4	4
78	446718	5022959	7805	07-27	13	8	3.41	0.64	43679	4	6	6	6	6	3	4	4
78	446718	5022959	7806	07-27	13	8	4.48	0.58	37232	6	6	7	7	6	3	4	4
78	446387	5023059	7807	07-27	15	9	3.53	0.49	37232	5	7	7	6	7	5	5	5
78	446718	5022959	7808	07-27	13	8	3.43	0.54	43679	6	6	6	7	6	4	5	5
78	446718	5022959	7809	07-27	13	8	5.95	0.65	37232	7	7	6	6	6	5	5	4
78	446718	5022959	7810	07-27	13	8	6.16	0.61	37232	5	5	6	6	6	5	5	4
78	446718	5022959	D550	07-27	13	8	6.23	0.78	37232	7	7	7	7	6	3	4	3

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
79	445995	5021189	7901	07-27	22	12	4.27	0.45	55405	6	6	7	6	4	5	5	5
79	445995	5021189	7901	07-27	22	12	4.27	0.45	55405	7	7	7	7	7	5	5	5
79	445995	5021189	7902	07-27	22	12	4.22	0.45	55405	5	5	7	6	6	3	4	3
79	445995	5021189	7902	07-27	22	12	4.22	0.45	55405	6	6	7	7	6	5	4	4
79	445995	5021189	7903	07-27	22	12	4.20	0.41	55405	6	7	6	6	6	3	5	5
79	445995	5021189	7904	07-27	22	12	4.16	0.38	55405	6	7	5	6	5	5	5	4
79	445995	5021189	7905	07-27	22	12	4.36	0.39	55405	6	5	6	7	5	2	4	1
79	445995	5021189	7906	07-27	22	12	4.34	0.38	55405	7	7	7	7	6	3	3	3
79	445995	5021189	7907	07-27	22	12	4.33	0.30	54647	7	6	7	7	4	3	5	5
79	445995	5021189	7908	07-27	22	12	4.33	0.30	54647	6	6	6	6	6	4	3	3
79	445995	5021189	7909	07-27	22	12	4.33	0.30	54647	7	7	7	6	6	5	5	5
79	445995	5021189	7910	07-27	22	12	4.33	0.30	54647	7	7	7	6	6	4	5	5
79	445995	5021189	D578	07-27	22	12	4.32	0.38	55405	6	6	7	7	7	4	5	5
80	442313	5026590	8001	07-28	5	5	5.46	1.99	58171	6	6	7	7	7	4	5	5
80	442313	5026590	8002	07-28	5	5	5.42	1.99	58171	6	7	7	6	6	3	5	4
80	442313	5026590	8003	07-28	5	5	5.34	1.98	58171	7	7	7	7	7	5	5	5
80	442313	5026590	8004	07-28	5	5	5.59	1.96	58171	6	6	6	6	4	1	4	2
80	442313	5026590	8005	07-28	5	5	6.62	1.90	58171	7	7	3	6	6	5	5	5
80	442313	5026590	8006	07-28	5	5	5.96	1.87	58171	7	6	6	7	6	4	5	5
80	442313	5026590	8007	07-28	5	5	5.93	1.89	58171	6	7	6	6	7	4	5	4
80	442313	5026590	8008	07-28	5	5	6.09	2.00	58171	6	6	7	7	6	4	5	5
80	442313	5026590	8009	07-28	5	5	4.85	2.04	58171	7	7	7	6	6	4	5	4
80	442313	5026590	8010	07-28	5	5	5.71	1.91	58171	6	6	7	6	6	2	3	2
80	442313	5026590	D606	07-30	5	5	6.56	1.87	58171	6	7	7	6	5	4	5	5
80	442313	5026590	D610	07-28	5	5	6.57	1.94	58171	6	6	6	6	6	4	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
81	439316	5025678	8101	07-28	13	6	3.75	0.18	47898	6	6	7	7	6	3	5	4
81	439316	5025678	8102	07-28	13	6	3.92	0.19	47898	7	7	6	7	7	5	5	5
81	439316	5025678	8103	07-28	13	6	4.29	0.24	47898	6	6	6	6	7	4	5	5
81	439316	5025678	8104	07-28	13	6	4.21	0.24	47898	7	7	6	6	6	4	3	4
81	439316	5025678	8105	07-28	13	6	4.06	0.22	47898	6	7	7	7	7	5	5	5
81	439316	5025678	8106	07-28	13	6	3.68	0.17	47898	6	7	6	7	7	5	5	5
81	439316	5025678	8107	07-28	13	6	3.52	0.13	47898	7	7	4	4	6	4	4	4
81	439316	5025678	8108	07-28	13	6	4.22	0.29	47898	6	6	7	7	7	4	5	4
81	439316	5025678	8109	07-28	13	6	4.01	0.22	47898	6	6	6	6	6	4	5	5
81	439316	5025678	8110	07-28	13	6	4.02	0.23	47898	6	6	3	6	7	4	5	5
81	439316	5025678	D637	08-02	13	6	3.99	0.21	47898	6	6	7	7	7	3	4	4
81	439316	5025678	D655	07-28	13	6	4.23	0.27	47898	6	6	7	7	7	4	3	4
81	439316	5025678	D673	08-05	13	6	4.19	0.28	47898	6	6	7	7	6	2	4	4
82	450274	5032050	8201	07-31	9	6	4.81	2.60	49560	6	6	7	7	6	3	3	3
82	450274	5032050	8202	07-31	9	6	4.92	2.64	49560	7	7	7	6	4	4	5	5
82	450274	5032050	8203	07-31	9	6	4.71	2.61	49560	6	6	6	6	6	3	5	5
82	450274	5032050	8204	07-31	9	6	4.62	2.62	49560	6	7	7	7	6	4	5	5
82	450274	5032050	8205	07-31	9	6	4.91	2.66	49560	7	7	7	6	7	4	5	5
82	450274	5032050	8206	07-31	9	6	4.79	2.56	49560	6	5	7	7	7	4	4	4
82	450274	5032050	8207	07-31	9	6	4.66	2.55	49560	7	7	7	7	6	4	5	4
82	450274	5032050	8208	07-31	9	6	5.75	2.77	49560	7	7	7	7	5	4	5	4
82	450274	5032050	8209	07-31	9	6	5.06	2.70	49560	6	2	5	2	4	2	3	4
82	450274	5032050	8210	07-31	9	6	3.88	2.50	40998	7	7	7	6	6	4	4	4
82	450274	5032050	D684	08-16	9	6	4.67	2.57	49560	7	6	7	7	6	4	5	5
82	450274	5032050	D694	08-01	9	6	5.34	2.71	49560	6	7	7	7	7	5	4	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
82	450274	5032050	D699	07-31	9	6	5.04	2.64	49560	4	5	6	6	6	2	5	5
82	450274	5032050	D730	08-09	9	6	5.92	2.80	49560	6	6	6	6	6	4	4	3
83	446845	5028422	8301	07-31	27	9	3.40	0.22	55115	6	6	6	6	6	3	3	4
83	446845	5028422	8302	07-31	27	9	3.70	0.21	55115	5	7	7	7	7	4	5	5
83	446845	5028422	8303	07-31	27	9	3.43	0.20	55115	6	7	7	7	6	5	5	5
83	446845	5028422	8304	07-31	27	9	3.85	0.14	55115	6	6	7	5	5	2	3	3
83	446845	5028422	8305	07-31	27	9	3.51	0.10	55115	7	7	7	7	6	4	5	5
83	446845	5028422	8306	07-31	27	9	3.44	0.12	55115	7	7	7	6	7	4	5	4
83	446845	5028422	8307	07-31	27	9	3.44	0.13	55115	7	6	7	7	7	4	5	4
83	446845	5028422	8308	07-31	27	9	3.38	0.10	52951	6	6	6	5	4	3	4	3
83	446845	5028422	8309	07-31	27	9	3.32	0.19	55115	2	2	6	6	5	3	5	4
83	446845	5028422	8310	07-31	27	9	3.78	0.27	52951	6	7	6	6	7	3	4	4
83	446845	5028422	D771	08-01	27	9	3.62	0.11	55115	7	7	7	6	6	3	5	5
84	438920	5022809	8401	08-02	20	7	2.96	1.67	50636	6	6	7	6	6	4	5	4
84	438920	5022809	8402	08-02	20	7	3.10	1.67	50636	6	7	7	6	4	1	4	2
84	438920	5022809	8403	08-02	20	7	2.46	1.75	50636	6	6	6	7	7	5	5	5
84	438920	5022809	8404	08-02	20	7	2.40	1.75	50636	7	7	7	7	7	3	3	3
84	438920	5022809	8405	08-02	20	7	4.23	1.57	39124	5	2	6	6	6	3	4	4
84	438920	5022809	8406	08-02	20	7	2.95	1.51	56223	6	6	7	7	6	3	3	4
84	438920	5022809	8407	08-02	20	7	3.56	1.59	50636	7	7	7	7	7	4	4	4
84	438920	5022809	D825	08-02	20	7	2.41	1.75	50636	2	2	7	7	6	5	5	5
84	438920	5022809	D860	08-03	20	7	3.32	1.59	50636	6	6	7	6	6	3	4	4
84	438920	5022809	D864	08-07	20	7	3.77	1.59	50636	4	4	5	7	6	3	3	4
85	442826	5025339	8501	08-02	6	6	3.03	2.11	20809	4	4	4	3	4	2	3	2
85	442826	5025339	8502	08-02	6	6	3.11	2.11	20809	6	6	6	5	3	4	5	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
85	442826	5025339	8503	08-02	6	6	3.15	2.10	20809	5	6	6	7	6	4	5	4
85	442826	5025339	8504	08-02	6	6	3.16	2.05	20809	7	6	6	2	3	4	3	3
85	442826	5025339	8505	08-02	6	6	3.16	2.05	20809	6	6	5	6	4	2	4	4
85	442826	5025339	8506	08-02	6	6	3.16	2.05	20809	6	6	6	7	7	4	5	5
85	442826	5025339	8507	08-02	6	6	3.31	1.96	21099	4	4	5	5	3	4	4	4
85	442826	5025339	8508	08-02	6	6	3.31	1.96	21099	6	4	5	7	6	2	4	4
85	442826	5025339	8509	08-02	6	6	3.31	1.96	21099	6	7	7	7	7	5	4	5
85	442826	5025339	8510	08-02	6	6	3.31	1.96	21099	4	2	2	5	4	4	3	3
86	446315	5029089	8601	08-04	3	2	2.91	0.12	26638	2	7	7	7	4	4	5	5
86	446315	5029089	8602	08-04	3	2	3.06	0.09	26638	6	7	7	6	6	4	5	5
86	446315	5029089	8603	08-04	3	2	3.13	0.07	26638	6	6	7	7	7	4	5	5
86	446315	5029089	8604	08-04	3	2	2.78	0.17	26638	4	6	6	6	4	3	4	3
86	446315	5029089	8605	08-04	3	2	3.25	0.15	26638	7	7	7	7	7	3	4	5
86	446315	5029089	8606	08-04	3	2	3.39	0.15	26638	5	5	6	6	7	3	4	3
86	446315	5029089	8607	08-04	3	2	3.30	0.18	26638	6	6	6	5	4	5	5	5
86	446315	5029089	8608	08-04	3	2	3.25	0.19	26638	6	6	6	7	6	4	5	3
86	446315	5029089	8609	08-04	3	2	3.19	0.20	26638	4	4	3	3	4	1	5	5
86	446315	5029089	8610	08-04	3	2	2.57	0.20	26638	6	6	6	5	4	3	4	5
86	446315	5029089	D920	08-04	3	2	2.48	0.17	26638	5	5	3	5	3	5	4	5
86	446315	5029089	D947	08-04	3	2	3.44	0.14	26638	7	7	6	6	6	5	5	5
87	448172	5033105	8701	08-04	6	5	9.30	0.31	55068	7	7	7	7	7	5	5	5
87	448172	5033105	8702	08-04	6	5	9.57	0.32	55068	6	6	6	6	7	4	5	5
87	448172	5033105	8703	08-04	6	5	8.79	0.39	55068	5	5	6	7	6	5	5	5
87	448237	5033410	8704	08-04	6	4	7.22	0.24	55068	6	7	7	7	7	4	4	4
87	448172	5033105	8705	08-04	6	5	8.55	0.18	70484	6	7	7	7	6	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
87	448172	5033105	8706	08-04	6	5	7.29	0.05	70484	6	7	7	6	7	5	5	4
87	448172	5033105	8707	08-04	6	5	7.80	0.13	70484	7	7	6	6	6	4	5	4
87	448172	5033105	8708	08-04	6	5	8.86	0.15	70484	7	7	6	7	7	4	4	5
87	448172	5033105	8709	08-04	6	5	8.09	0.44	55068	6	6	6	6	6	3	3	4
87	448172	5033105	8710	08-04	6	5	7.51	0.47	55068	5	6	6	6	5	1	1	1
87	448237	5033410	D969	08-09	6	4	7.05	0.10	70484	6	6	7	7	7	4	4	4
87	448172	5033105	D975	08-05	6	5	11.25	0.23	70484	7	7	7	7	7	3	4	4
88	450917	5026912	8801	08-08	16	7	4.31	3.40	37283	5	5	3	6	5	2	5	5
88	450917	5026912	8802	08-08	16	7	4.60	3.41	37283	4	4	6	5	4	4	5	5
88	450917	5026912	8803	08-08	16	7	3.95	3.38	32111	7	7	6	6	5	3	4	5
88	450917	5026912	8804	08-08	16	7	3.67	3.34	32111	7	7	7	7	6	4	4	4
88	450917	5026912	8805	08-08	16	7	3.93	3.33	32111	5	3	6	6	6	3	4	3
88	450917	5026912	8806	08-08	16	7	4.16	3.26	32111	7	7	7	7	6	4	5	5
88	450917	5026912	8807	08-08	16	7	5.05	3.23	41419	3	5	5	5	3	3	4	4
88	450917	5026912	8808	08-08	16	7	5.06	3.31	41419	6	6	6	6	4	3	5	5
88	450917	5026912	8809	08-08	16	7	4.95	3.35	41419	5	5	6	5	6	4	5	4
88	450917	5026912	8810	08-08	16	7	4.65	3.44	37283	7	7	7	7	6	1	3	4
88	450917	5026912	E032	08-11	16	7	4.54	3.30	32111	7	7	7	7	7	4	5	5
88	450917	5026912	E034	08-09	16	7	4.22	3.31	32111	4	4	7	7	6	1	3	3
89	448767	5024132	8901	08-08	46	13	1.77	2.14	17793	6	6	6	6	5	3	4	4
89	448767	5024132	8902	08-08	46	13	2.36	2.10	17793	7	7	5	5	1	3	5	4
89	448767	5024132	8903	08-08	46	13	2.31	2.30	17793	6	5	6	6	5	4	4	4
89	448767	5024132	8904	08-08	46	13	1.94	2.24	17793	5	5	3	5	5	4	5	5
89	448767	5024132	8905	08-08	46	13	3.14	2.09	30543	6	6	6	5	6	3	4	5
89	448767	5024132	8906	08-08	46	13	2.51	2.23	17793	4	4	4	6	4	1	3	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
90	441269	5026308	9001	08-09	6	5	4.38	1.17	54011	6	7	6	6	5	3	4	5
90	441269	5026308	9002	08-09	6	5	4.43	1.15	54011	6	7	6	6	6	5	5	3
90	441269	5026308	9003	08-09	6	5	4.27	1.10	54011	6	6	5	7	5	3	5	5
90	441269	5026308	9004	08-09	6	5	4.34	1.08	54011	7	6	7	7	6	3	5	4
90	441269	5026308	9005	08-09	6	5	5.19	1.01	61028	6	5	7	7	6	4	5	5
90	441269	5026308	9006	08-09	6	5	5.11	1.10	54011	6	6	7	6	5	3	5	5
90	441269	5026308	9007	08-09	6	5	4.89	0.94	53488	6	6	6	6	5	4	5	5
90	441269	5026308	9008	08-09	6	5	4.17	1.09	54011	5	6	6	5	6	4	4	3
90	441269	5026308	9009	08-09	6	5	4.22	1.05	53488	6	6	6	7	6	3	4	5
90	441269	5026308	9010	08-09	6	5	4.87	0.90	53488	7	6	7	7	6	3	5	5
90	441269	5026308	E183	08-21	6	5	4.43	1.17	54011	6	6	6	5	5	4	4	2
90	441269	5026308	E185	08-09	6	5	4.31	1.14	54011	6	6	7	7	7	5	3	2
90	441269	5026308	E190	08-10	6	5	4.86	1.09	61028	3	5	6	5	6	4	1	1
90	441269	5026308	E219	08-20	6	5	4.84	0.95	53488	6	6	7	7	7	4	4	3
91	439182	5023836	9101	08-09	16	10	3.22	1.10	42902	6	6	7	7	6	3	4	4
91	439182	5023836	9102	08-09	16	10	3.23	1.07	42902	6	6	7	6	5	4	5	5
91	439182	5023836	9103	08-09	16	10	3.28	1.00	42902	6	6	6	6	4	3	4	2
91	439182	5023836	9104	08-09	16	10	3.25	1.01	42902	7	7	7	6	5	4	4	4
91	439182	5023836	9105	08-09	16	10	3.10	1.02	42902	7	6	7	6	6	4	5	5
91	439182	5023836	9106	08-09	16	10	3.25	1.06	42902	5	7	7	5	4	3	5	5
91	439182	5023836	9107	08-09	16	10	3.26	1.06	42902	6	6	7	6	7	5	5	4
91	439182	5023836	9108	08-09	16	10	3.44	1.10	42902	5	5	6	5	5	5	5	4
91	439182	5023836	9109	08-09	16	10	3.91	1.23	42902	6	7	7	7	6	5	5	4
91	439182	5023836	9110	08-09	16	10	3.76	1.25	50531	6	7	7	7	6	2	5	5
91	439182	5023836	E240	08-09	16	10	3.26	1.05	42902	6	6	6	6	4	4	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
91	439182	5023836	E262	08-23	16	10	3.56	1.17	42902	6	6	7	6	5	3	4	5
91	439182	5023836	E264	08-25	16	10	3.71	1.19	42902	6	6	6	6	5	2	3	4
92	451505	5033549	9201	08-10	20	12	5.26	1.14	47492	6	6	7	7	7	4	5	4
92	451505	5033549	9202	08-10	20	12	8.28	0.92	71658	7	7	7	7	6	5	5	5
92	451505	5033549	9203	08-10	20	12	7.16	0.99	71658	5	4	7	7	7	5	5	4
92	451505	5033549	9204	08-10	20	12	8.94	0.87	71658	7	7	7	7	7	5	5	5
92	451505	5033549	E288	08-24	20	12	8.43	0.92	71658	3	5	5	7	7	5	5	5
93	446545	5033606	9301	08-10	15	7	6.91	0.39	69404	6	6	7	7	7	5	5	4
93	446545	5033606	9302	08-10	15	7	7.01	0.33	69404	7	7	7	7	7	5	5	5
93	446545	5033606	9303	08-10	15	7	7.10	0.39	69404	6	7	7	7	7	4	5	5
94	449855	5028460	9401	08-11	9	6	5.01	1.86	50171	6	7	6	6	6	2	5	5
94	449855	5028460	9402	08-11	9	6	4.64	1.79	50171	7	7	7	7	6	2	4	5
94	449855	5028460	9403	08-11	9	6	4.54	1.83	50171	7	5	7	7	6	5	5	5
94	449855	5028460	9404	08-11	9	6	5.35	1.83	49275	6	6	7	6	6	5	4	3
94	449855	5028460	9405	08-11	9	6	5.42	1.92	49275	6	7	6	7	7	5	5	4
94	449855	5028460	9406	08-11	9	6	5.38	1.96	49275	6	7	6	7	7	5	4	4
94	449855	5028460	9407	08-11	9	6	5.53	1.91	49275	6	6	5	5	5	4	3	4
94	449855	5028460	9408	08-11	9	6	5.57	1.87	49275	6	6	6	6	6	4	4	4
94	449855	5028460	9409	08-11	9	6	5.28	1.82	49275	6	7	7	6	7	4	5	5
94	449855	5028460	9410	08-11	9	6	5.58	1.94	49749	3	3	5	5	5	3	5	4
94	449855	5028460	E357	08-11	9	6	5.59	1.99	49275	6	6	7	7	6	5	3	3
94	449855	5028460	E364	08-19	9	6	5.55	1.86	49275	6	6	6	6	6	5	5	5
95	452320	5030702	9501	08-11	19	13	4.51	4.01	36810	6	7	6	7	7	5	4	5
95	452320	5030702	9502	08-11	19	13	4.59	4.16	25630	6	6	7	5	4	5	5	4
95	452320	5030702	9503	08-11	19	13	4.57	4.06	25630	7	6	6	6	6	5	5	5

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
95	452320	5030702	9504	08-11	19	13	3.93	3.91	25630	6	7	7	5	4	2	4	4
95	452320	5030702	9505	08-11	19	13	4.21	4.13	25630	5	7	5	3	3	3	4	4
96	439660	5020858	9601	08-14	11	4	4.47	2.56	56040	6	6	6	6	7	4	5	5
96	439660	5020858	9602	08-14	11	4	4.55	2.54	56040	5	4	6	6	5	1	5	3
96	439660	5020858	9603	08-14	11	4	4.78	2.52	56040	6	6	6	6	6	4	5	4
96	439660	5020858	9604	08-14	11	4	4.60	2.62	58866	6	6	7	7	6	4	5	5
96	439660	5020858	9605	08-14	11	4	4.33	2.68	56040	6	4	5	2	4	1	5	3
96	439660	5020858	9606	08-14	11	4	4.24	2.66	56040	6	6	6	7	6	4	4	2
96	439660	5020858	9607	08-14	11	4	4.38	2.65	56040	6	6	7	6	6	4	5	4
96	439660	5020858	9608	08-14	11	4	4.44	2.56	56040	6	6	7	6	6	2	4	4
96	439660	5020858	9609	08-14	11	4	4.19	2.46	56040	7	7	7	7	6	2	5	5
96	439660	5020858	9610	08-14	11	4	4.26	2.69	56040	6	6	6	7	5	4	4	3
96	439660	5020858	E447	08-14	11	4	4.41	2.60	56040	2	6	7	7	6	3	3	3
96	439660	5020858	E494	09-14	11	4	4.33	2.51	58866	7	6	7	7	6	4	5	5
97	434689	5022401	9701	08-14	37	13	3.65	0.15	54758	6	3	7	6	7	5	5	5
97	434689	5022401	9702	08-14	37	13	4.26	0.11	40660	6	7	7	7	7	1	5	4
97	434689	5022401	9703	08-14	37	13	4.45	0.19	40660	7	7	7	7	6	4	5	5
97	434689	5022401	9704	08-14	37	13	4.48	0.19	40660	7	7	6	6	5	3	5	4
97	434689	5022401	9705	08-14	37	13	4.53	0.16	40660	6	6	6	1	4	4	5	5
97	434689	5022401	9706	08-14	37	13	3.80	0.25	37184	6	6	7	7	6	5	5	5
97	434689	5022401	9707	08-14	37	13	3.72	0.27	37184	7	7	7	7	7	5	5	5
97	434689	5022401	9708	08-14	37	13	3.61	0.29	37184	7	7	7	7	6	4	5	5
97	434689	5022401	9709	08-14	37	13	3.94	0.16	54758	6	6	6	6	7	5	5	4
97	434689	5022401	9710	08-14	37	13	3.80	0.30	37184	7	4	7	7	6	4	5	4
97	434689	5022401	E505	08-20	37	13	3.47	0.14	54758	7	6	7	7	6	3	4	4

Site	Easting	Northing	User ID	Date	Abun.	Rich.	Tree	Water	Inc.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
98	451732	5027501	9801	08-15	38	8	3.47	3.81	29220	7	7	6	6	3	1	5	5
98	451732	5027501	9802	08-15	38	8	4.31	4.03	30053	7	7	7	7	7	5	5	5
98	451732	5027501	9803	08-15	38	8	4.40	3.93	30053	6	7	6	6	3	2	2	2
98	451732	5027501	9804	08-15	38	8	4.46	3.93	30053	6	6	6	7	7	2	4	4
98	451732	5027501	9805	08-15	38	8	4.63	4.06	30053	6	7	6	6	5	3	4	5
98	451732	5027501	9806	08-15	38	8	3.43	3.79	29220	6	6	6	7	4	4	5	5
98	451732	5027501	9807	08-15	38	8	3.84	3.85	29220	7	6	7	6	6	4	4	4
98	451732	5027501	9808	08-15	38	8	4.30	3.90	29220	6	6	7	7	6	4	5	5
98	451732	5027501	9809	08-15	38	8	3.47	3.81	29220	6	6	6	6	4	1	3	3
98	451732	5027501	9810	08-15	38	8	3.47	3.81	29220	6	6	7	7	6	5	5	4
98	451732	5027501	E591	08-16	38	8	4.71	4.10	30053	7	7	7	7	6	4	4	4
98	451732	5027501	E594	08-15	38	8	4.63	3.94	30053	6	6	6	5	6	2	2	4
99	450334	5031101	9901	08-15	3	3	4.57	2.61	32851	7	6	7	7	7	5	5	5
99	450334	5031101	9902	08-15	3	3	4.57	2.61	32851	5	6	3	6	1	5	5	5
99	450334	5031101	9903	08-15	3	3	4.57	2.61	32851	5	4	5	5	4	4	3	5
99	450334	5031101	9904	08-15	3	3	4.57	2.61	32851	6	6	6	5	3	3	3	3
99	450334	5031101	9905	08-15	3	3	6.07	2.71	33333	6	5	6	5	4	1	5	4
99	450334	5031101	9906	08-15	3	3	4.57	2.61	32851	6	6	3	6	3	5	5	4
99	450334	5031101	9907	08-15	3	3	4.57	2.61	32851	4	4	3	5	3	3	4	4
99	450334	5031101	9908	08-15	3	3	6.07	2.71	33333	6	6	6	6	5	2	3	2
99	450334	5031101	9909	08-15	3	3	6.62	2.69	33333	6	6	4	6	6	4	4	4
99	450334	5031101	9910	08-15	3	3	3.36	2.48	27638	7	7	3	3	3	1	5	5
100	449077	5028039	10001	08-16	8	5	6.94	1.37	16200	6	6	7	7	4	5	5	5

Table B: Parameter values used for predicting probabilities as seen in Figures 3-6. Data sets were created where each parameter is held constant except for the parameter of interest. Intercept was set to 1. Bird abundance and species richness, tree canopy cover (ha), distance to water (km), and median yearly income were set at the mean of all 1035 samples. Disposition₁₋₆) was evaluated at the median answer (“Moderately happy”) using orthogonal polynomial contrast coding.

Parameter	Value
Intercept	1
Abundance	15.637680
Richness	7.058937
Tree	4.212934
Water	1.303990
Income	42197.73
Disposition ₁	0.37796450
Disposition ₂	0.00000000
Disposition ₃	-0.40824830
Disposition ₄	-0.56407610
Disposition ₅	-0.43643580
Disposition ₆	-0.19738551

Figure B: Histograms of participant responses to survey questions 1-8 (see Table 1). Responses are scored with 1 being the least positive response. Residents in Ottawa, Canada were surveyed about their life satisfaction and their thoughts about their local environment. Participants were surveyed at 100 sites distributed across the city (Figure 1). Each site had a 250m radius centred around a pre-existing bird point count location from the Ottawa Bird Count (OBC). Sites were chosen to reduce correlation between predictor values (bird abundance and species richness, tree canopy cover, distance to water, and median income).

Table C: Pearson correlation coefficients between site predictor variables and response rates. There were 100 total sites distributed across the residential Ottawa area. Each site had a 250m radius and was centred on a pre-existing bird point count location from the Ottawa Bird Count (OBC). Predictor variables measured at the site include bird abundance and species richness, tree canopy cover (ha), distance to water (km), and median individual yearly income. Residents who lived in the site were surveyed door-to-door and flyers were distributed to boost sample size. Sites were surveyed until either there were 10 participants or until there were no more residential addresses to visit. In-person response rate is the number of individuals who participated from door-to-door surveying divided by the total number of people who were spoken to. The flyer response rate is the number of individuals who responded to the flyer divided by the total number of flyers left at residences. The overall response rate is the total number of participants divided by the total number of people contacted (either in-person or by flyer).

Predictor Variable	In-person Response Rate	Flyer Response Rate	Overall Response Rate
Abundance	-0.110	-0.113	-0.040
Richness	-0.091	-0.083	-0.048
Tree	-0.001	-0.050	0.055
Water	-0.285	-0.287	-0.207
Income	0.409	0.223	0.358

Table D: Parameter coefficients for all models. Models were fit using ordered probit mixed models where site was treated as a random effect. Predictor variables included bird abundance and species richness, tree canopy cover (ha), distance to water (km), median individual yearly income and disposition. Models either included disposition as a predictor or did not. Disposition was measured as the participant's response to question 1 (Table 1) If disposition was included as a predictor it was coded using orthogonal polynomial contrasts up to the sixth power. Each model only included one bird variable at a time, either bird abundance or bird species richness. Significance level is denoted by asterisks where: * $p < 0.05$, ** $p < 0.01$, * $p < 0.001$.**

		<i>Disposition & Abundance</i>	<i>Disposition & Richness</i>	<i>Abundance</i>	<i>Richness</i>
Question	Parameter	Coefficients			
Q1	Intercept			3.02600 ***	3.01100 ***
	Bird			0.00758	0.02212
	Tree			0.06628	0.05812
	Water			-0.06398	-0.06519
	Income			0.00000	0.00000
Q2	Intercept	3.38500 ***	3.36800 ***	3.32400 ***	3.31000 ***
	Bird	-0.00627	-0.01461	-0.00022	0.00274
	Tree	-0.02099	-0.01473	0.01353	0.01415
	Water	-0.04261	-0.04256	-0.07485	-0.07292
	Income	0.00001 **	0.00001 **	0.00001 *	0.00001 *
	Disposition ₁	2.15600 ***	2.16000 ***		
	Disposition ₂	2.96500 ***	2.96000 ***		
	Disposition ₃	-0.78150 *	-0.78370 *		
	Disposition ₄	0.63130 *	0.63970 *		

	Disposition ₅	-0.34910		-0.36050					
	Disposition ₆	-0.05446		-0.04752					
Q3	Intercept	2.19900	***	2.10200	***	2.42000	***	2.32800	***
	Bird	0.00952		0.04230	*	0.01170	*	0.04735	*
	Tree	0.03339		0.02078		0.05427		0.04022	
	Water	-0.06040		-0.05837		-0.07720		-0.07522	
	Income	0.00002	***	0.00002	***	0.00002	***	0.00002	***
	Disposition ₁	1.14700	***	1.15800	***				
	Disposition ₂	0.81510	**	0.80830	**				
	Disposition ₃	0.19530		0.20070					
	Disposition ₄	-0.02998		-0.04119					
	Disposition ₅	-0.23150		-0.21290					
	Disposition ₆	0.09538		0.07983					
Q4	Intercept	2.42100	***	2.35900	***	2.53000	***	2.47200	***
	Bird	0.01025		0.03734	*	0.01172	*	0.04089	*
	Tree	0.23740	***	0.22540	***	0.23730	***	0.22410	***
	Water	-0.09111		-0.09082		-0.09829		-0.10050	
	Income	0.00001		0.00001		0.00001		0.00001	
	Disposition ₁	0.49500		0.49960					
	Disposition ₂	0.85960	**	0.85290	**				
	Disposition ₃	0.23610		0.24720					
	Disposition ₄	-0.60740	*	-0.62730	*				
	Disposition ₅	0.20800		0.22970					
	Disposition ₆	0.06286		0.04530					
Q5	Intercept	2.06200	***	2.08000	***	2.19200	***	2.22500	***
	Bird	0.01023		0.03073		0.01152	*	0.03408	

	Tree	0.23430	***	0.22420	***	0.23300	***	0.22170	***
	Water	-0.19740	**	-0.20080	**	-0.20620	***	-0.20860	**
	Income	0.00002	***	0.00002	***	0.00002	***	0.00002	***
	Disposition ₁	0.17840		0.19170					
	Disposition ₂	1.00700	***	1.00100	**				
	Disposition ₃	-0.17560		-0.16940					
	Disposition ₄	-0.30160		-0.31620					
	Disposition ₅	0.18700		0.20510					
	Disposition ₆	-0.06171		-0.07103					
Q6	Intercept	1.55100	***	1.47900	***	1.56800	***	1.48300	***
	Bird	-0.00111		0.00853		-0.00065		0.01019	
	Tree	0.14260	***	0.14320	***	0.14580	***	0.14530	***
	Water	-0.17100	**	-0.16970	***	-0.17280	***	-0.16980	***
	Income	0.00000		0.00000		0.00000		0.00000	
	Disposition ₁	0.02126		0.02127					
	Disposition ₂	0.31030		0.30270					
	Disposition ₃	0.14820		0.15630					
	Disposition ₄	-0.25780		-0.26560					
	Disposition ₅	-0.07751		-0.06941					
	Disposition ₆	0.51540	*	0.51250	*				
Q7	Intercept	3.40200	***	3.38800	***	3.46300	***	3.45800	***
	Bird	-0.00006		-0.00027		0.00071		0.00266	
	Tree	0.04407		0.04387		0.05515		0.05395	
	Water	-0.08205		-0.08206		-0.08869		-0.08866	
	Income	0.00000		0.00000		0.00000		0.00000	
	Disposition ₁	0.47140		0.47360					

	Disposition ₂	0.39810		0.38820			
	Disposition ₃	0.08638		0.09173			
	Disposition ₄	0.14360		0.14320			
	Disposition ₅	-0.15360		-0.15360			
	Disposition ₆	0.18490		0.18250			
Q8	Intercept	2.97800	***	3.00700	***	3.10600	***
	Bird	-0.00048		-0.00751		0.00080	-0.00315
	Tree	0.05728		0.05916		0.06658	0.06567
	Water	-0.03238		-0.03307		-0.04239	-0.04519
	Income	0.00000		0.00000		0.00000	0.00000
	Disposition ₁	0.48080		0.47560			
	Disposition ₂	0.59690		0.60200			
	Disposition ₃	-0.15990		-0.16370			
	Disposition ₄	0.27170		0.27350			
	Disposition ₅	-0.32430		-0.32350			
	Disposition ₆	0.05675		0.05339

Figure C: Comparison between the models with and without disposition for the bird variables. The independent effects of each of bird abundance and species richness, after controlling for the effects of tree canopy cover, distance to water and income, on the probability (+/- 95% credible intervals) of a participant answering the most positive option (“Far Above Average”) for question 5 (“How would you rate the quality of your neighbourhood’s natural environment compared to other areas in Ottawa?”). Each plot shows the effect of one predictor, while all other predictors are held constant at their means (median for disposition). Effects are plotted in blue if the 95% credible intervals around their coefficient estimates do not overlap 0.