**Dataset information**

When sourcing datasets, we attempted to maximise the variety of types of sourced data, within the habitat island umbrella, to ensure that the extrapolation approach was tested on a range of different contexts. As such, we have included a number of different system types (e.g. forest fragments, sacred groves, mountaintops, protected areas, lakes), and have made different decisions for different datasets. In regard to the latter, examples include: (i) for some we included the largest ‘control’ fragment while for others we did not, (ii) we have included a small number of density–area rather than species–area datasets, (iii) for some we include all species whereas others are just breeding or resident species, (iv) for some we include introduced species and others not, and (v) for some we average richness across years while in others we use one year’s data. In many cases, we have followed the decisions made by the source paper authors in terms of what data to include, but in others we made different decisions in order to maximise the variety of sourced data.

**Baldi & Kisbenedek (1999)**

Orthopterans in steppe patches in Buda Hills, Hungary.

Combined records from 1992 and 1993 into a single sample. Largest fragment is given as >400,000 m2, we have kept it in and used area as 400,000 (40 ha).

**Baldwin & Bradfield (2007) Nimpkish**

Bryophytes in old growth forest patches in British Columbia, Canada. 100km apart from Sayward landscape. Sampling took place in the centre of the patches on specific substrates and note that sampling intensity was constant (i.e. technically species density rather than richness), i.e. did not vary with patch area and thus richness estimates are conservative in larger patches. Indeed the authors note that other species were encountered in the patches but not included in the data here – as they only use their sample data to look at the SAR, we do the same.

**Baldwin & Bradfield (2007) Sayward**

Bryophytes in old growth forest patches in British Columbia, Canada. 100km apart from Nimpkish landscape. Sampling took place in the centre of the patches on specific substrates and note that sampling intensity was constant (i.e. technically species density rather than richness), i.e. did not vary with patch area and thus richness estimates are conservative in larger patches. Indeed the authors note that other species were encountered in the patches but not included in the data here – as they only use their sample data to look at the SAR, we do the same.

**Baz et al (1995)**

Butterflies in forest fragments in Spain. Authors identified no significant relationship between area and richness.

**Behle (1978)**

Birds in montane sky islands, Great Basin USA. Largest area presented is the “mainland” and this is excluded. Area values provided are total area above 7500 feet elevation. Only comprises species the author classified as ‘boreal’ species. We use the ‘total number of boreal species found’ column in Table 1.

**Benassi et al (2007)**

Birds in wetland fragments in Central Italy. We used the total species richness values – this included breeding species and ‘vagrant’ species; we used this as the authors’ definition of ‘vagrant’ included migrant non-breeders which are arguably an important component of wetland areas. Authors state their sampling method would not effectively sample crepuscular and nocturnal species.

**Benedick et al (2006)**

Butterflies (specifically, fruit-feeding nymphalid butterflies) in forest fragments (surrounded by oil palm and other agriculture) in Borneo. We did not use Sites 1 and 2 as not listed as fragments but as continuous sites. Data are combined across two sampling periods (by the authors). We used the actual observed species richness values (as provided in Appendix 1) rather than estimated richness values as the authors (seemingly) use, but note that given the size of the fragments involves, these are probably conservative estimates, especially for the larger fragments (their analyses indicate ~ 80% of species were recorded in each site).

**Blake and Karr (1984); Blake (1991)**

Originally, the dataset we used was from Blake & Karr (1984) and just contained long-distance migrants and forest interior species. Here, we have replaced it with the more complete version of the dataset released by the authors (Blake, 1991; reference provided below), which has a fuller complement of species. We use the species list for the year 1980. Species are all breeding residents (and the list does not include birds of prey or crows). The fragment in their table with the area listed as 5.6ha is (we presume) an error as in their Table 3 (and their other papers) it is given as 5.1ha, so we use 5.1ha in our analyses.

Blake, J.G. (1991) Nested subsets and the distribution of birds on isolated woodlots. *Conservation Biology*, **5**, 58-66.

**Bogich et al (2012)**

Land snails (we included native species and the few non-native species) in forest fragments in New Zealand. A confounding variable here is grazing as some fragments were subjected to grazing pressure, while others were not; some fragments were also found to have invasive plant and snail species and others not. However, in reality most fragmentation studies have these kinds of differences between the studied fragments.

Originally, we took richness values from Appendix A.3 as we aimed to always use observed richness rather than estimated richness values. However, on closer inspection it seems that some mistakes were made in the original data collection and it is not actually fully clear what samples in A3 are related to which sites. As such, in this update we now use the estimated richness (Mao Tau) values for each fragment (whole fragment: “ALL”) from Table A2.1.

**Boyle & Smith (2010)**

Primates in forest fragments (BDFFP experiment) in Brazil. Sampling took place between 2003 and 2006 and presence data reported as percentage of data cycles in which a species was present. We have taken all non-zero values to represent presence (i.e. we have pooled the samples across the three years). The authors note that isolation and area co-vary to some degree.

**Brown (1971)**

Mammals on mountaintop sky islands in the Great Basin, USA. Uses specific criteria to delineate mountain top islands. Only focuses on boreal species that occur only at higher elevation. Large carnivores and ungulates removed due to human impacts, and bats also not included. Data collected from combination of literature search and field work. Island areas provided as area above 7500 feet.

**Brown (1978) – mammals**

Mammals on mountaintop sky islands in the Great Basin, USA. Uses specific criteria to delineate mountain top islands. Only focuses on boreal species that occur only at higher elevation. Large carnivores and ungulates removed due to human impacts, and bats also not included. Data collected from combination of literature search and field work. Island areas provided as area above 7500 feet. Data taken from Table 1.

Dataset has overlap with Brown (1971) but does differ in some respects as i) it focuses on a slightly different subset of mammal species as different criteria for classifying species as ‘boreal’ was used, ii) updated occurrence data are used, and iii) it includes two more islands.

**Brown (1978) – birds**

Birds on mountaintop sky islands in the Great Basin, USA. Uses specific criteria to delineate mountain top islands. Island areas provided as area above 7500 feet. Focuses on permanent resident ‘boreal’ bird species. Only provides bird data for 13 of the 19 islands, and we do not include the four sites classed as “mainlands”. Original data sourced from two other studies. Data taken from Table 1.

**Browne (1981) - fish**

Fish in lakes in New York state. Data from Table 2 – not included the two lakes listed as having non-comparable censuses (\*). The author compiled data from various published sources.

**Browne (1981) - molluscs**

Molluscs in lakes in New York state. Data from Table 1. The author compiled data from various published sources. The species lists excludes the smaller fingernail clams due to taxonomic confusion. We did not include the small ponds and springs (26-37) as the values from these are all grouped.

**Browne (1981) - zooplankton**

Zooplankton in lakes in New York state. Data from Table 2 (No. of species column) – not included Lake Ontario as data listed as unavailable. The author compiled data from various published sources

**Brotons and Herrando (1991)**

Dataset provided by lead author.

Sampling undertaken during the breeding season, and each fragment visited 2-4 times. Only breeding bird species – transients, late migrants and those known to not breed in forest excluded unless evidence of breeding.

**Calvillo et al (2010)**

Bees in tropical forest fragments in Mexico. Introduced species not included.

**Carter-Lovejoy (1982)**

Small mammals on kipukas (islands of sage brush habitat isolated by barren lava) in Idaho. Eight species in total: two were considered to be present on every island, one determined due to ubiquitous urine markings. This version corrected a small issue: we originally missed that one island was included in Table 1 twice (as it had intermediate size so the author placed it in two size groups). As such, here we have removed it.

**Charles & Ang (2010)**

Small mammals in Kerangas forest fragments in Brunei. We made two corrections in this version. First, previously we incorrectly included the continuous forest site (mistakenly reading it had an area of 149 ha) – this was removed. Second, previously we summed species richness values across Tables 1 (cage trapping) and 2 (predators sampled using cages and cameras). To be more consistent with the authors’ richness values used in their analyses, this time we just use values from Table 1.

One site is listed in one place as 0.01ha and another as 0.1ha, we have gone with the former as it is listed as that in more than one place. Authors note that some patches were in relatively close proximity and they observed individuals crossing between. They also note one fragment is located within a larger forest reserve (149 ha in size).

**Cieślak and Dombrowski (1993)**

Fragments come from two forest “archipelagos” (one sampled in 1980 and one in 1983) in Eastern Poland, separated by about 45 km. We have followed the authors in combining them into one dataset. Only breeding species. Small correction (1 species each) to richness values of two fragments made in this new version.

**Crooks et al (2001)**

Birds (eight scrub specialists) in scrub habitats surrounded by an urban matrix in California. Data taken from Table 2. Note that Table 2 states that it is ordered by fragment area, but this does not appear to be the case based on the areas provided in Table 1.

Six corrections to richness values in this version – it seems for Acuna, Raffee, Oak, 54th street, chateau and Montanosa, the first column was missed so all the richness values were one too few.

**Crowe (1979)**

Flowering plants in urban lots in Chicago. We took the species richness totals from the presence-absence matrix in the Appendix, and note that these values differ slightly from those given in Table 1.

Note that the lots also varied in term mowing frequency.

One richness correction in this version (by 1 species).

**Dalecky et al (2002)**

Mammals in 38 forest fragments in flooded tropical forest landscape (from dam construction) in French Guiana. Non-flying mid to large-bodied mammals sampled. Muroid rodents and marsupials excluded. Range of data sources used, including field work. We did not include the 1000ha “continuous” forest site, but we did include the 28ha “land-bridge” island. Data taken from Appendix 1 (occurrence data from period 1995-1999). We included records listed as regularly observed (R), occasionally observed (O), but not ? or extinct (EX) records. One richness value corrected.

**Darlington et al (2001)**

Termites in forest islands, in Kenya. Sampling was undertaken in larger forest “remnant” and 25 forest “islands”. We have only included the forest islands. Islands consisted of “dense thickets nucleated around one or several large trees”, surrounded by grassland. Data taken from Table 2. The authors provided length and width variables and in their analyses use length \* width to represent area, and we have followed this. One island has a length value of “100+” – for this we use 100. We excluded +Od and +Cu records which represent nests that could not be identified to species level.

**Davis et al (1988)**

Twelve forest mountaintop islands in New Mexico. Small, non-flying, forest-dwelling mammals (only those occurring primarily in the region and with “an obvious northern centre of distribution”). Area represents the total area comprising a range of habitats. Data from Table 2. Note that island 9 listed as having six species, but only five recorded in the presence-absence matrix (we have gone with five). Distribution data originally take from three literature sources.

**Davis et al (1988) 2**

Data taken from Davis et al (1988) but they originally take the data from Patterson (1984; which we do not have access to, but also summarised in Patterson & Atmar 1986). Data relate to 26 species (of “boreal or boreocordilleran affinity”) on 28 mountains, thus a more expansive study region than Davis et al (1988). The first island is presented as the mainland but has a given area and richness and is less than twice the size of the largest “island” and we have thus included it here (Patterson & Atmar also include it in their ISAR analysis).

**Dinesen et al (2001)**

Primates and duikers in forest fragments in Tanzania. Data come from combination of sampling (with varying sampling effort) and literature sources. Fragments recorded as suffering various threats, including bushfire and hunting and logging and should be seen as highly disturbed. Had to make some assumptions – in the presence absence matrix Mufindi is just given as a single forest, so we summed the areas of Mufindi East and West in Table 1. And Udzungwa Scarp split in North and South in the PA table, but given as one forest in Table 1; thus, we have combined the two PA matrix records.

Note, some species not specifically surveyed for so absence is just presumed. We have not included the one presence value reported by villagers. Overall, quite a noisy dataset.

**Essl & Dirnbock (2012)**

Orthoptera species in 60 semi-natural grassland remnants.

**Feeley & Terborgh (2006)**

Birds on 29 flooded lake islands in Lago Guri, Venezuela. Focused on resident forest-interior birds. Large territory birds (e.g. raptors, large pigeons, parrots) excluded.

Overlap with Feeley (2003) but Feeley (2003) includes a much larger island (order of magnitude larger than second largest) that is not here, so the datasets can be thought of as the same with and without this much larger island, representing an interesting test in the context of this analysis.

**Feeley (2003)**

Birds on 26 flooded lake islands in Lago Guri, Venezuela. Focused on breeding resident forest-interior birds: “a pair/male had to be observed during at least two thirds of the censuses of an island to be considered as breeding on the island of interest.”

Note that one island (#20) is listed in the Table as having six species, but in the PA matrix as five (we have gone with the latter).

**Ferraz et al (2003)**

Understory bird species in the BDFF fragmentation experiment in Brazil. Data collected over 13 years in 11 sites using mist-netting. For richness values we have used the first census recording (S0 in Table 1). Originally, we assumed this was the initial post-isolation richness, but on second reading it is ambiguous and thus could potentially be the initial pre-isolation richness.

**Flaspohler et al (2010)**

Birds in Hawaiian forest fragments isolated by volcanic activity. Only birds recorded perching included (i.e not flyovers). Both native and introduced species included, given the latter are argued to be a key part of the bird fauna on the island.

**Ford (1987)**

We have included species classed either as resident or transient, as the definition of transient here could include species seen in the fragment in two sampling visits (i.e., properly recorded, not just flying over).

**Frank & Battisti (2005)**

Breeding birds in woodland fragments in central Italy. Note one fragment is listed as being adjacent to a larger patch. We used the S column in Table 3 which corresponds to the species sampled using the line transects, rather than S\* which includes species observed outside of the standardised transects. But note an extra 13 species were observed outside of the transects.

**Galanes & Thomlinson (2009)**

Woody plants in forest fragments in Puerto Rico. Fragments were not all fully isolated, with small vegetation corridors connected to some (but distinctly narrower than the patches themselves).

**Galli et al. (1976)**

They include all species recorded except those flying over.

In going back through the source paper, we realised we had previously misinterpreted the experimental design: their data are not for a set of ten fragments but a set of 30 (3 same-sized replicate samples from ten fragments) where results are condensed for each area. For continuity, we decided to retain the dataset in the present re-analysis. It should also be noted that some rare species are mentioned in the paper but not listed in their main results table. These have now been included in the data for analysis, with the exception of *Vireo* sp., and thus the dataset is slightly updated relative to the original version used.

**Ganzhorn et al (2000)**

Lemurs in littoral forest fragments in Madagascar. Lemur presence in fragments obtained from literature searches and authors’ own work. Data taken from Table 2 (A – littoral forest) – this includes data from nine fragments in the south littoral forests, and one fragment (Tampolo) in the East of the country. One fragment area value corrected.

**Gavish et al (2012) 1**

Spiders sampled in natural vegetation patches (surrounded by agriculture) in the Dvir landscape, Israel. Only the 12 smaller fragments included and not the larger ‘unfragmented’ area. Individuals identified to species or morphospecies.

**Gavish et al (2012) 2**

Spiders sampled in natural vegetation patches (surrounded by agriculture) in the Lachish landscape, Israel. Only the 12 smaller fragments included and not the larger ‘unfragmented’ area. Individuals identified to species or morphospecies.

**Granados et al (2001)**

Plants in ten protected natural areas in Texas. We have used the total species column in Table 2 (native + introduced species).

**Hall et al (2003)**

Plant species in 20 scrub patches in Florida. Authors only included species endemic or near endemic to Florida scrub, and we used the ‘Scrub species’ column in table 3: “Scrub species richness consisted of all 38 species representative of sand pine scrub in Pinellas County including obligate species and those species that may occur in other dry pinelands such as xeric sandhill or scrubby flatwoods.”

**Hatfield & LeBuhn (2007)**

Plants in 20 montane meadows surrounded by coniferous forest. Study was set up to assess the impacts of patch and landscape variable on bumble bees. Through this the authors collected data on plant richness in their patches. Plants studied using quadrats and quadrat number scaled with meadow area. Data taken from Table 1.

**Hatt (1948) - amphibians**

Amphibians on lake islands in Lake Michigan. Technically true islands, but included here due to their small-scale making them similar to, for example, flooded forest islands in reservoirs. Area values taken from Table 5. Species records taken from Appendix – given lack of details on the sampling method used, we have included all records listed in the appendix. Some islands were excluded as listed as having “no collecting” or “no adequate collecting”. Islands sampled during various field expeditions.

**Hatt (1948) - birds**

Birds on lake islands in Lake Michigan. Technically true islands, but included here due to their small-scale making them similar to, for example, flooded forest islands in reservoirs. Area values taken from Table 5. Species records taken from Appendix – given lack of details on the sampling method used, we have included all records listed in the appendix. Some islands were excluded as listed as having “no collecting” or “no adequate collecting”. However, we did include Bellow, Fishermen’s and Marion islands, which the author lists as having few records, to be consistent with the other sampled taxa. Found three richness values were out by 1; corrected here. Islands sampled during various field expeditions.

**Hatt (1948) - reptiles**

Reptiles on lake islands in Lake Michigan. Technically true islands, but included here due to their small-scale making them similar to, for example, flooded forest islands in reservoirs. Area values taken from Table 5. Species records taken from Appendix – given lack of details on the sampling method used, we have included all records listed in the appendix. Some islands were excluded as listed as having “no collecting” or “no adequate collecting”. Islands sampled during various field expeditions. Several zero species islands.

**Hattori & Ishida (2000)**

Plants in lucidophyllous forests (preserved in shrines and temples) in central Miyazaki Prefecture, Japan. Different region of Japan to Ishida et al (1998). Note, journal article is in Japanese. Data taken from Appendix 1. Originally we took the richness values from Appendix 2, where had used the data there to make a presence-absence matrix: this had several errors in, which have now been corrected. Note that the authors’ richness values in Appendix 1 for islands 25-27 are not in the correct order, relative to what is presented in Appendix 2.

**Holbech (1995)**

Birds in protected forest reserves. Note that some reserves are linked together (i.e not trully isolated) and, although protected, most are subject to selective logging. The author also cautions that sampling effort was unequal between sites

They include two separate species for *Halycon malimbica* and *Halcyon malimbicus*, but these seem to be the same species (blue-breasted kingfisher) so must be a mistake – we have combined them here in to one species. Two species were provided at the subspecies level; we have simply considered these as species. We have included species sampled with line transects and mist netting.

**Ishida et al (1998)**

Plants in 29 lucidophyllous fragments (preserved in precincts of shrines) in Hyogo prefecture, Japan. Other than figures, tables and abstract, all article is in Japanese. Data taken from Appendix 1.

**Johnson (1975)**

Birds on montane islands in the Great Basin, USA. Bird data comes from a range of sources, included published work and the author’s own field work. Dataset is similar to Brown (1978); in fact, Brown uses the data here to construct his own dataset. However, we have included this dataset also as it i) uses a different area measure (the lower edge of the forest-woodland as the perimeter), and ii) includes a different set of species (“all species of birds of Boreal derivation that are resident”) which leads to much higher richness values. Data taken from Table 2 and we use data in N1 and AR columns. Author warns that, although richness estimates are likely almost 100% complete, they comprise accumulated totals from different sources over a long time period and thus may be “slightly higher than the actual number of species present during a single breeding season.”

**Kiviniemi & Eriksson (2002)**

Plants in 16 semi-natural grassland fragments in Sweden. The sites are noted as having moderate grazing pressure.

**Kitchener et al (1980) 1**

Lizards in 23 reserves in Western Australia (i.e. not fully isolated islands). Data taken from Table 1. Area taken as reserve area. Authors note that richness values from one site may be lower due to burning that took place between surveys.

**Kitchener et al (1980) 2**

Mammals (excluding bats) in 23 reserves in Western Australia (i.e. not fully isolated islands). Data taken from Table 1. Area taken as reserve area. Total mammal richness used (natives + exotics). Authors note that richness values from one site may be lower due to burning that took place between surveys.

**Kitchener et al (1980) 2**

Plants in 23 reserves in Western Australia (i.e. not fully isolated islands). Data taken from Table 1. Area taken as reserve area. Authors note that richness values from one site may be lower due to burning that took place between surveys.

**Kitchener et al (1982)**

Birds in 22 reserves in Western Australia (i.e. not fully isolated islands). For area values, we used the reserve area provided in Table 1. For richness values we used the sum of P2 and NP2: total passerine and non-passerines recorded in reserves only, including those feeding over vegetation canopy of reserves.

**Koh & Sodhi (2004)**

Butterflies in forest reserves and fragments in Singapore. We combined the forest reserve and forest fragment categories, but did not include the urban parks. Note that the 4 forest reserves are likely less disturbed than the 14 forest fragments, with varying habitat. Transect number varied with site area.

**Kratter (1992)**

Birds in mountain islands in California. Author “defined mountain islands in southern California and Baja California as any range or peak above 1200 m that supports montane coniferous forests and is disjunct from other mountain islands and the Sierra Nevada.” We used total richness (all breeding montane species). Data sourced from a variety of publications and updated with author’s field work. Author notes that his data collection approach may overestimate number of breeding species in a given year. Species that also bred in lower elevational areas excluded. Data taken from Table 1.

**Langrand (1995)**

We include the seven smaller fragments and the larger forest block (control site) as it is also in effect a forest fragment.

Mist netting effort per unit area decreased with increasing fragment area. The author was focusing primarily on forest species and has excluded some non-forest species already.

**Lawesson et al (1998)**

Plants in beech forest fragments in Denmark. Data taken from Appendix A. We used ‘all species’ values. Most vernal species were excluded. Authors note that forest age also varied and was an important predictor.

**Lomolino & Davis (1997)**

Mammals on mountaintop islands in the Cordillero-Madrean region, N America. Data from Table 1 and we have combined species with northern affinities, southern affinities and montane endemics (i.e. total richness column). Data originally sourced from a range of literature sources. Appears authors focused only on non-volant mammals with ‘affinities’ for forested habitats.

**Lomolino & Perault (2001)**

Mammals in temperate rainforest fragments, USA. Mammals sampled using a combination of sampling approaches.

Data taken from Tables 2 and 3. We use old growth forest and “matrix” (i.e. those species not classified as old growth forest specialists) species combined.

**Lorenzetti & Battisti (2007)**

Birds in 20 forest fragments, in a suburban landscape Central Italy. Matrix is a mix of agriculture and urban land use. Data were for breeding bird species and originally presented in their 2006 paper (Table 3 here), which we were unable to source.

**Lorenzetti & Battisti (2007)**

Trees in 20 forest fragments, in a suburban landscape Central Italy. Matrix is a mix of agriculture and urban land use. Data taken from Table 1. Sampling was proportional to fragment area.

**Lynam (1997)**

Small mammals in forest fragment islands in a flooded reservoir, Thailand. Authors excluded those species not sampled effectively by their methods. Authors note the system is in flux as relaxing following isolation from flooding; this is why we choose one year rather than averaging across.

Data taken from Appendix 15.1 - we randomly selected one period’s data to use (Year 6 Dry).

**Maldonado-Coelho & Marini (2003); now dos Anjos (2004)**

Originally, we used the data from Maldonado-Coelho et al (2003). This publication was in Portuguese and on closer inspection is not really appropriate to include given that it is focused on flocks of birds rather than on deriving species lists for fragments. Data were taken from Appendix 1. We only used records from H flocks, and combined data across wet and dry season. However, due to its potential unsuitability, we replaced it in this revised analysis with another avian dataset from the Atlantic Forest that was not previously included.

*dos Anjos et al (2004)*

Dataset provided by the source paper author (Luiz dos Anjos, personal communication). This dataset comprises birds sampled in 14 fragments from the Atlantic Forest; anthropogenically fragmented islands rather than the naturally fragmented islands as in dos Anjos and Boçon (1999). The sampled area (i.e., number of point counts) was kept the same in each fragment, meaning proportionally more area of the smaller fragments was sampled and the species richness of the larger fragments will likely be underestimated. Indeed, previous (more exhaustive) studies by the author of the largest fragment found several more species; however, we have used the dataset as provided to keep the sampling method consistent. Species only recorded once in a single point count in a fragment were marked (by the source paper author) as absent.

dos Anjos, L., Zanette, L. & Lopes, E.V. (2004) Effects of fragmentation on the bird guilds of the Atlantic Forest in north Paraná, southern Brazil. *Ornitología Neotropical*, **15**, 137–144

**Mamo & Bolen (1999)**

Birds in ‘Carolina’ bays / wetlands, North Carolina. The wetlands were surrounded by a matrix of pine plantations and clear cut. Birds sampled using mist-netting. Authors exclude raptors and scavengers, and include only breeding species (residents and migrants). Data taken from Table 1.

**Marshall et al (2010)**

Monkeys in forest fragments, Tanzania. Data taken from a collection of literature sources coupled with new surveys. Some overlap with Dinesen et al (2001) as that is one of the studies the data were sourced from, but this study includes a wider range of sample data, updated fragment areas and the included fragments in each are not exactly the same. As such, we have kept both datasets.

Data taken from Table 1. We included species recorded as ‘X’ and ‘1’, but not those where record was unsure (e.g. X/- or X/0). We excluded species classified as transitory (0) as the authors did the same in their SAR plots. Authors note the amount of hunting by humans varies across fragments, as does the amount of fragment surveyed and the amount of degradation (and thus closed vs open canopy forest).

**Martinez-Morales et al (2005)**

Birds in 13 cloud forest fragments, Mexico. Birds sampled using point counts. Data taken from Tables 1 and 2. We used the detected bird species rather than estimated (via rarefaction) in order to be consistent with the other datasets. We assume this includes all species (forest interior and generalist species).

**Matthiae & Stearns (1981)**

Mammals in forest islands in USA, isolated by agricultural and urban landscapes (note proportion of urban in matrix varied between islands). Only includes mammals which could be “live-trapped or otherwise observed.” Shrews, moles, weasels and bats not trapped. Data taken from Table 5.1. Note that for two fragments (2.2ha and 0.4ha) the totals in their Total No. species column don’t match what is presented in the presence-absence matrix; we have used the latter.

**McCollin (1993)**

Birds in woodland fragments in the UK. The data are for confirmed breeding species – the author removed four species that were considered to not be breeding.

**Metzger et al (1997)**

Tree species in riparian forest fragments, Brazil. Fragments sampled from four landscapes, varying in degree of fragmentation and connectivity. Actually a study of fragment width, but area effects also evaluated.

**Meynard & Quinn (2008)**

Birds in protected areas, Chile. Park areas from Appendix A, and richness values taken from the (observed) presence-absence matrix in Appendix D (this includes species detected outside the survey points). One reserve is nested within a larger fragment (but for consistency we use the area of the reserve).

Note that the reserves are not fully forested, and the % forest varies considerably across reserves. All contain secondary growth forest, but some also contain old growth.

**Miyashita et al (1998)**

Web spiders in urban forest fragments in Yokohama, Japan. We used the data for the nine fragments in Yokohama, and not the Tokyo fragments. The first fragment is listed as “continuous”, so we excluded this and focused on the other 9 fragments. Area data from Appendix A, and richness data from Appendix B (May and September data combined).

**Mohd-Azlan & Lawes (2011)**

Birds in mangrove patches in north Australia. Matrix type (e.g. savanna, grassland, swamp forest) varied between patches. All migratory waders and seabirds excluded. Area data taken from Table 1 and incidence data from Appendix A. This relates to “All species”. Note that for one patch (EAT), there is a discrepancy in the richness values in Appendix A (42) and Table 1 (43): we have used the Appendix A value.

**Natuhara & Imai (1999)**

Urban woods in Osaka, Japan. Occurrence data were sourced from other papers, including their own. Seemingly the authors have focused on 43 forest bird species, and thus other species must have been excluded. Data taken from Table 1. We excluded the three very large parks, as these did not seem to be isolated and thus may represent the “source” areas.

**Neame et al (2013)**

Invertebrate pollinators (bees, flower flies, cuckoo wasps) in oak-savannah (prairie-oak; largely treeless flower-rich meadows) ecosystem fragments, in Canada. Other groups (other wasps, butterflies) excluded as very uncommon. The matrix around fragments differed (urban in most cases, forest in a small number). Data from Appendix A – “Actual species richness” column used. Sampling involved either sampling entire fragment (if < 1ha), or sampling a random 1ha area (if > 1 ha), and thus more accurately recording species density. Note also that the authors state sampling completeness was likely not 100%.

**Newmark (1986)**

Non-volant mammals in western North American National Parks. Parks that were contiguous / joined were considered to be a single park. Richness data comes from literature sources and park sighting records (species sighted fewer than three times considered transients and excluded). Non-natives included as believed to be core part of the community. Data taken from Table 1.

**Newmark (1991)**

Birds in forest fragments in Tanzania. Focuses on forest understory birds, sampled using mist nets; all non-forest and non-understorey species excluded. We included the control site (the 571ha fragment). Area data taken from Table 1. Richness data were taken from the presence-absence matrix in Table 2. Note that for two fragments (Sites 1 & 7), the richness values provided in Table 1 differ (by 1 species) by those presented in Table 2.

**Nores (1995)**

Birds on mountain top islands in Argentina. Species (seemingly breeding bird species) data compiled from the literature and the author’s own field observations. Data taken from Table 1. One island technically connected to the Andes but considered isolated by the authors due to the presence of endemic subspecies.

**Page et al (2010) – shrubs**

Forest fragments (scared groves) in Western Ghats, India. Data from table 1, and we used the observed species richness values. Only the 11 sacred grove fragments were included.

**Page et al (2010) – trees**

Forest fragments (scared groves) in Western Ghats, India. Data from table 1, and we used the observed species richness values. Only the 11 sacred grove fragments were included.

**Pearce et al (2005)**

Spruce forest patches in Ontario, Canada. All patches surrounded by clearcut. Both carabids and spiders were sampled and richness is the pooled richness. Data taken from Table 1. Note, two area values given as roughly as (e.g. ~4) and we have used these values. “Total species” column used.

**Raheem et al (2008)**

Land-snails in rainforest fragments in Sri Lanka. Data taken from Table S1 – only forest fragments included, not home gardens. For small fragments, area values “estimated in the field”. Sampling designed to avoid edge habitats. Some taxa unable to be identified.

**Ramanamanjato (2000) – amphibians**

Amphibians in 11 littoral forest fragments in Madagascar. Direct searching, pitfall traps and drift fence used as a sampling methods. Data taken from Table 1.

**Ramanamanjato (2000) – reptiles**

Reptiles in 11 littoral forest fragments in Madagascar. Direct searching, pitfall traps and drift fence used as a sampling methods. Data taken from Table 1. Small correction applied to the dataset – two richness values changed by one.

**Rau & Gantz (2001)**

Birds in native forest fragments, Chile. Data in Table 1 (Riqueza observada column). Says richness in the “nucleus” of fragments surveyed, so perhaps edge areas not surveyed. Focuses on land birds associated with forest habitat, and also excludes birds of prey. Six fragments connected by small riparian corridors. Main article in Spanish.

**Ribas et al (2005)**

Ants and crickets in forest remnants, Brazil. Data presented in Table 2, and we have combined both ants and crickets. Note that for one fragment (BIO), the species total they give in Table 2 differs from the raw data they provide in the table (only by one species); we use the latter.

**Rosenblatt et al (1999)**

Nonvolant mammals in forest fragments, Illinois. Same fragments as Blake (1991), but this time sampled for mammals rather than birds; although here authors consider one pair of adjacent fragments to be a single patch (considered two in Blake). Domestic cats and dogs excluded, as was prairie vole (a grassland species), and grey and red fox grouped. Data from Table 1.

**Scanlan (1981) – Swift**

Plants (non-aquatic angiosperms) in woodlots in Minnesota (tall grass prairie region), USA. Data for stands in Swift county. Only includes stands in the Alexandria Moraine archipelago. Includes natural and planted woodlots. Data taken from Table 7.1. Island area taken from photographs at two time periods and the average between the two used. Total species richness used.

**Scanlan (1981) - Kandiyohi**

Plants (non-aquatic angiosperms) in woodlots in Minnesota (tall grass prairie region), USA. Data for stands in Kandiyohi county. Only includes stands in the Alexandria Moraine archipelago. Includes natural and planted woodlots. Data taken from Table 7.1. Island area taken from photographs at two time periods and the average between the two used. Total species richness used.

**Shreeve & Mason (1980)**

Butterfly species in UK woodlands. Woodland type (conifers, mixed etc) varied, as did the amount of management. We used total woodland area (column 1 in Table 1).

**Silva & Porto (2009)**

Epixylic bryophytes in Atlantic Forest fragments, Brazil. We took area values from the Size Column in Table 1 (“area in a bidimensional plane”), and we used the observed richness values from Table 2. Sampling intensity seemingly not proportional to fragment area.

**Simberloff and Martin (1991)**

Original data in Haila et al. (1987) – we have used the data as presented in Simberloff and Martin (1991). Reading Haila et al. (1987), it appears that the data are largely for breeding species, and they removed ‘transients’ where they could (but this was only possible in fragments that they sampled more than twice).

**Smith et al (1996)**

Lizards in remnants of gimlet woodland in Australia. All remnants had been grazed to some degree by livestock. Include 24 smaller remnants and two larger ‘control’ remnants, which we also included as both were under 200ha. However, note that these two larger control remnants, while being native vegetation, were not all pure gimlet woodland. Authors note that one of the two larger remnants was a “4ha area of gimlet woodland within a 138 ha remnant”. We used 138ha as the area for this.

Two sets of species records are provided for the largest 174ha fragment. For this, we took the more species rich of the two (17 species) to use – these represent 14 species caught in pitfall traps and 3 from direct observations.

**Soule et al (1998)**

Birds in urban chaparral scrub patches in California. Study is focused on ‘chaparral requiring birds’, i.e. specialists. Same study system as Crooks et al (2001), but sampling taken ten years apart and not the exact same set of patches, so richness values differ.

Originally, we sourced data using the distributions in Table 2, but have noticed there are a few discrepancies between Table 2 and the richness values in Table 3. We have changed to follow Table 3 now, as this seems to match their SAR figures.

**Stiles and Scheiner (2010)**

Woody plant species in remnant desert xeric scrub habitat fragments in a metropolitan area, Arizona. Area values excluded parts of fragments that were heavily disturbed or included recreational facilities.

Richness values taken from Appendix S2 – we used the total species sampled column.

**Struebig et al (2008)**

Bats in forest fragments in Malaysia. Focuses on insectivorous species as easier to sample. We used the data for the same 15 fragments the authors analysed. We did not include the continuous sites.

Data taken from Table 2, and we used the Sobs column which is stated to represent the ‘number of observed species’. However, elsewhere in the text the authors state “observed species richness (Sobs) and reciprocal Simpson diversity (1/D, evenness) were derived from sample-based rarefaction curves.” So it could be that we are using rarefied richness values. Note there are some small discrepancies for some fragments between Table 2 where we got the data, and Appendix 1 which also lists the site richness (we are not sure of the reason). This version corrected some richness data errors.

**Terborgh et al (1997)**

Birds on forest land-bridge islands in Lago Guri, Venezuela. Note the islands are relatively young (7 years), so there still may be extinction debts. Aquatic species were excluded by the authors, as were species with large spatial requirements (e.g. raptors, vultures, pigeons, swallows) unless evidence of nesting was found.

For all small and medium islands, the authors provide the area of the entire island (and censused the whole island). For the single large island, they only censused a small part of it (23.1 ha out of ~350ha). As they list the 23.1 ha area in their Table 1, we use that.

The authors used two types of sampling method and present results separately for each: spot map censuses and point counts. The richness values they present in Table 2 are, we believe, just those derived from the spot maps.

Same study region as the two Feeley datasets, but different sampling period and different subset of islands. However, we differentiated the dataset further by focusing on total species (Total species column in Table 2), which includes residents, edge species and visitors (non-breeders), given that the Feeley datasets were focused on resident forest interior bird species. In this version, we corrected some small data entry errors.

**T.J. Matthews – France**

Birds in forest fragments in France. All species recorded within the fragments, i.e., excluding species seen/heard outside the patches or flying over.

**T.J. Matthews - Spain**

Birds in forest fragments in Spain. All species recorded within the fragments, i.e., excluding species seen/heard outside the patches or flying over.

**T.J. Matthews – UK**

Birds in forest fragments in the UK. All species recorded within the fragments, i.e., excluding species seen/heard outside the patches or flying over.

**T.J. Matthews – Norway**

Birds in forest fragments in Norway. All species recorded within the fragments, i.e., excluding species seen/heard outside the patches or flying over.

**Tonn & Magnuson (1982)**

Fish in 18 lakes in North Wisconsin. In this study, we included lakes as habitat islands, but arguably they could be considered more similar to true islands given the inhospitability of the matrix to fish; although the presence of waterways in the catchment areas perhaps indicate the opposite. Sampling undertaken in winter and summer.

Data taken from Appendix 2 – we used all species records (summer, winter and both).

**Usher & Keiller (1998)**

Moth fauna of 18 woods around York, UK. Woods surrounded by arable land and connected by hedgerows. Minimum distance between woods 10m. One fragment area given as “<0.10”ha – we have used 0.05 as a value for this. Data taken from Table 1.

**Usher et al (1993)**

Spiders in 28 woods (surrounded by farmland) around York, UK. Some woods same as in Usher & Keiller (1998). Woods a mixture of deciduous, coniferous and mixed woodland. Data taken from Table 1.

**Wang et al (2010) - birds**

Birds in 42 forest islands in Thousand Island Lake (created through anthropogenic damming), China. Sampling effort roughly proportional to island area.

Line transects used for sampling – all species seen or heard within 50m of transect lines recorded, but those flying over excluded. Owls and waterbirds excluded. Sampling undertaken during breeding and winter seasons, and no information on which species was sampled when so we believe the presence-absence matrix represents the full community (i.e. species present in breeding and/or wintering seasons). Data taken from Appendix S1 (area values from Table 1).

**Wang et al (2010) – small mammals**

14 forest islands in Thousand Island Lake (created through anthropogenic damming), China. Small mammals sampled using live-trapping methods. Data taken from Appendix S3 (area values from Table 1) – assume these are the combined data from the two sampling periods. Sampling effort roughly proportional to island area.

**Wang et al (2010) – lizards**

Lizards on 42 forest islands in Thousand Island Lake (created through anthropogenic damming), China. Data taken from Appendix S2 (area values from Table 1) – assume these are the combined data from the two sampling periods (2007 and 2008 breeding seasons). Sampling effort roughly proportional to island area.

**Watling & Donnelly (2008)**

Amphibians (frogs) in 24 naturally fragmented forest fragments in Bolivia. Data taken from Table 1 – Sobs column used, relating to the total (observed) number of species.

**Watson (2003)**

The original paper only focuses on 60 forest species, but we received the whole dataset from the author, which includes all species recorded in the patches. This is the “master list” and comprises a mix of species from the author’s own field sampling and records from the fragments (these are all very large fragments) found in the literature. This represents all species recorded as being present in the fragments, not just those forest dependent species focused on in the main paper.

**Watson et al (2009)**

Birds in 30 littoral forest fragments in Madagascar. Data taken from Table 1, and we have used total species richness (Species number column).

**Wethered and Lawes (2005 - Balgowan)**

One of two datasets from this source paper, here the fragments surrounded by a natural grassland matrix. The full presence-absence matrix provided in their Table 3 is used.

**Wethered and Lawes (2005 - Gilgoa)**

One of two datasets from this source paper, here the fragments surrounded by a plantation forest matrix. Data are for ‘total compliment’ of species. The full presence-absence matrix provided in their Table 3 is used.

**Whitcomb et al (1991)**

Birds in 27 forest fragments in Eastern USA. Seemingly focused on breeding bird species. Originally, we did not include the three largest fragments (all 905 ha), but did not note down the reason for this decision (but possibly due to them all being three times larger than the next largest). For consistency, we still exclude them here. In hindsight, with this dataset we failed to properly acknowledge that the sampling method is more accurately measuring density rather than richness per se, and thus these are more accurately described as density–area curves, but we keep it in as it provides a useful test of the approach with this type of dataset.

**Williams & Pearson (1997) – birds**

Birds in rainforest areas in Australia. The areas are not true isolates but are distinct subregions classified based on various criteria. Authors only considered rainforest species, and only endemic species. Species records sourced from variety of sources. Data taken from appendix, and we have used total richness (rather than endemic richness). Water birds excluded (we think).

**Williams & Pearson (1997) - frogs**

Frogs in rainforest areas in Australia. The areas are not true isolates but are distinct subregions classified based on various criteria. Authors only considered rainforest species, and only endemic species. Species records sourced from variety of sources. Data taken from appendix, and we have used total richness (rather than endemic richness).

**Willson et al (1994)**

Birds in rainforest patches in Chile. Some of the area values provided are only approximate. We have excluded both the secondary forest patch, as the author covers this separately, and the Linnebrink fragment, as they also advise not using this for richness data. Note that they only include data on “regular” species (i.e., transient and some agricultural species etc have been removed).

**Winter & Faaborg (1999)**

Breeding birds in 13 tallgrass prairie fragments in Missouri. Focuses on grassland-nesting birds. Sampling design actually measures density (within sample plots within fragments) rather than fragment richness per se. We took data from the Appendix and assumed all species records with non-zero mean density values were present and all with zero values were absent; note mean density values were averaged across three years (1995-1997).

**Woolhouse (1983)**

Birds in 30 woodland fragments from across the whole of the UK. Data come from BTO’s common bird census, and is based on territories (so breeding species). Note that observer amount varies across fragments. Main tree species differ across fragments. Author removed species not associated with woodlands.

Data are presented for each of five years (1976-1980). Here we have taken the average richness for each site across the five years; although note that the author states the z-value did not vary much across years.