**Metadata for data associated with article:**

Julia H. Heinen, Emiel E. van Loon, Dennis M. Hansen and W. Daniel Kissling: Extinction-driven changes in frugivore communities on oceanic islands. *Ecography*.

**File ‘Data\_Occurrences\_IslandFrugivores.txt’**

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| **Column names** | **Description** | **Type of data** |
| **Occurrence.ID** | Identification number for the species occurrence record. | Numbers |
| **Island.ID** | Identification number for the island. | Numbers |
| **Region** | Oceanic region where the island is located. | Names |
| **Archipelago** | Archipelago in which the island is located. | Names |
| **Island** | The name of the island. | Names |
| **Class** | Taxonomical class that the species belongs to. | Aves, Reptilia, Mammalia |
| **Order** | Taxonomical order that the species belongs to. | Names |
| **Family** | Taxonomical family that the species belongs to. | Names |
| **Species** | The complete scientific name of the species. | Names |
| **Status** | The status of the species, indicating if it is extant (still present) or extinct (gone). | Extinct, Extant |
| **Status.binary** | The status of the species, indicating if it is extant (still present) or extinct (gone). As binary values. | 1 (extinct), 0 (extant) |

**File ‘Data\_Traits\_IslandFrugivores.txt’**

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| **Column names** | **Description** | **Type of data** |
| **Species** | Bionomial name of species | Names |
| **Family** | Taxonomic information on family | Names |
| **Order** | Taxonomic information on order | Names |
| **Class** | Taxonomic information on class | Names |
| **Body.mass** | Body mass of the species. | Grams (comma as decimal) |
| **Flying** | Whether or not the species has the ability to fly. The quality of flight is not considered. | 0 (non-volent), 1 (volent) |
| **Diet** | The amount of fruit in the diet of the species.  In order to make all data match, the diet databases for birds and mammals have been given simplified categories: low (1), medium (2) or high (3).  For the bird database (Kissling *et al.,* 2009), percentages of fruit in the diet up to 30% were turned into 1 (low),  40% - 60% were turned into 2 (medium) and 70% - 100% were turned into 3 (high). For the mammal diet database (Kissling *et al.,* 2014), the categories "0" (no fruit) and "1" (occasional fruit) were merged into the new category 1 (low). According to literature searches all species in this database eat fruit, thus species with a "0" (no fruit) were estimated to include only a small amount of fruit in their diet. The mammal database category 2 (medium) and 3 (high) remained the same. The diets for species that were not in the databases were obtained through literature searches, use of taxonimically related surrogate species, genus mean diet from the database or estimates (in order of preference). | 1 (low), 2 (medium), 3 (high) |
| **Method.category.mass** | The method that was used to obtain the body mass data, devided into categories.  They are explained here, in order of preference: Database = The species names were matched with an existing database in order to obtain the data. Literature = Literature was searched extensively for published body mass values. Calculation = Other morphometrics (e.g. SVL) of the species that were derived from literature were used to calculate the body mass, according to equations from literature (e.g. Pough, 1980). Surrogate = The body mass of a taxonomically related, morphologically similar species was used. Estimate = The body mass of the species was estimated on the basis of morphology, taxonomy and other available information.  Genus mean = The mean body mass was calculated for all species in the same genus that were available in one of the used databases (Dunning (2008) as in Barnagaud et al. (2014) & Sandom et al. (2013) & Meiri, 2010). Some methods are combined in order to get the best possible data. For instance a surrogate that is chosen by means of a literature reference. | Database, literature, calculation, surrogate, estimate,  genus mean or combinations thereof. |
| **Method.category.flying** | The method of obtaining the data about the ability to fly, divided into categories. For most species such as reptiles and some mammals, an evaluation of the morphology was enough to determine if the species can fly (category morphology). Various images of the species were used for this purpose. All reptiles and all mammals that are not bats are considered to be non-volant. All birds have been evaluated separately, where specific attention was paid to those belonging to orders with non-volant species (e.g. rails, pigeons) and extinct species. In those cases either literature was used or the genus mean of the ability to fly, derived from this database. | Morphology, Literature, Genus mean. |
| **Method.category.diet** | The method of obtaining the diet data, devided into categories. Database = The species names were matched with an existing database in order to obtain the data. Literature = Literature was searched extensively for published descriptions of the amount of fruit in the diet. Surrogate = The diet of a taxonomically related, morphologically similar species was used. Estimate = The diet of the species was estimated on the basis of morphology, taxonomy and other available information.  Genus mean = The mean diet score was calculated for all species in the same genus that were available in one of the used databases (Kissling *et al.,* 2009 & Kissling et al., 2014). | Database, Literature, Surrogate, Estimate,  Genus mean or combinations thereof |
| **Surrogate.used.mass** | This column indicates if the body mass value is measured in the species itself (0) or measured in a surrogate species or genus (1). Other morphometrics used to calculate the body mass are also either measured on the species itself (0) or on a surrogate (1). | 0 (value derived from this species) or  1 (value derived from other species) |
| **Surrogate.name.mass** | The scientific name of the surrogate species of which the body mass value was used. | Names |
| **Surrogate.name.diet** | The scientific name of the surrogate species of which the diet value was used. | Names |
| **Diet.by.whom** | The name of the researcher that collected the diet data. | Hansen, Heinen, Kissling |
| **Source.bodymass** | Source of the body mass data. | Literature references |
| **Source.flying** | This column gives the source that was used to determine if the species has the ability to fly. The various images that were used to evaluate the morphology were obtained through google searches and are therefore not referred to. | Various images, genus mean or literature references |
| **Source.diet** | The source of the diet data. | Literature references or source numbers, see below. |

**Source numbers in column ‘Source.diet’ of file ‘Data\_Traits\_IslandFrugivores.txt’**

|  |  |
| --- | --- |
| **Numbers** | **Sources for diet** |
| 1 | Leguat F. 1708. A New Voyage to the East-Indies by Francis Leguat and His Companions. London: Bonwicke et al. |
| 2 | Cheke AS, Hume JP. 2008. Lost land of the Dodo. London, UK: Christopher Helm. |
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| 5 | Perry G, Buden DW. 1999. Ecology, behavior and color variation of the green tree skink, Lamprolepis smaragdina (Lacertilia: Scincidae), in Micronesia. Micronesica-Agana-, 31: 263-273. |
| 6 | Wright KM, Skeba S. 1992. Hematology and plasma chemistries of captive prehensile-tailed skinks (Corucia zebrata). Journal of Zoo and Wildlife Medicine: 429-432. |
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| 15 | Cooper Jr WE. 2000. Correspondence between diet and food chemical discriminations by omnivorous geckos (Rhacodactylus). Journal of chemical ecology, 26: 755-763. |
| 16 | Gibbons J, Clunie F. 1984. Brief notes on the voracious gecko, Gehyra vorax. Domodomo, 2: 34-36. |
| 17 | Meehan HJ, McConkey KR, Drake DR. 2002. Potential disruptions to seed dispersal mutualisms in Tonga, Western Polynesia. Journal of Biogeography, 29: 695-712. |
| 18 | Traveset A, Nogales M, Varagas P, Rumeu B, Olesen JM, Jaramillo P, Heleno R. 2016. The Galápagos land iguana (*Conolophus subcristatus*) as a seed disperser. Integrative Zoology. |
| 19 | Valido A, Olesen JM. 2007. Importance of lizards as frugivores and seed dispersers. In: Dennis A, Green R, Schupp E, Westcott D, eds. Seed dispersal: theory and its application in a changing world: CABI Publishing. |
| 20 | Sadek R. 1981. The diet of the Madeiran lizard Lacerta dugesii. Zoological Journal of the Linnean Society, 73: 313-341. |
| 21 | Blake, S., Wikelski, M., Cabrera, F., Guezou, A., Silva, M., Sadeghayobi, E., Yackulic, C.B. & Jaramillo, P. 2012. Seed dispersal by Galápagos tortoises. Journal of Biogeography, 39(11), 1961-1972. |
| 22 | Griffiths, C. J., Hansen, D. M., Jones, C. G., Zuël, N., & Harris, S. (2011). Resurrecting extinct interactions with extant substitutes. Current Biology, 21(9), 762-765. |
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**File ‘Data\_Island\_Characteristics.txt’**

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| **Column names** | **Description** | **Type of data** |
| **Island.ID** | Identification number for the island. | Numbers |
| **Region** | Oceanic region where the island is located. | Names |
| **Archipelago** | Archipelago in which the island is located. | Names |
| **Island** | The name of the island. | Names |
| **Arch.isl** | The island name and archipelago name together, separated by a comma. | Names |
| **Weigelt.ID** | The island identification number from Weigelt *et al.*, 2013. | Numbers |
| **Long** | Longitude, as in Weigelt *et al.,* 2013 | Longitude |
| **Lat** | Latitude, as in Weigelt *et al.,* 2013 | Latitude |
| **Area** | Area (km2), as in Weigelt *et al.,* 2013 | km2 |
| **Dist** | Distance to mainland (km), as in Weigelt *et al.,* 2013 | km |
| **SLMP** | Surrounding landmass proportion (Log10 proportion), as in Weigelt *et al.,* 2013 | Log10 proportion |
| **Elev** | Maximum elevation (m), as in Weigelt *et al.,* 2013 | m |
| **Temp** | Annual mean temperature (°C), as in Weigelt *et al.,* 2013 | °C |
| **Prec** | Annual precipitation (mm), as in Weigelt *et al.,* 2013 | mm |
| **Max.mass.pre.extinction** | The maximum body mass of the frugivore community (birds, mammals, reptiles) before extinctions took place. | Gram |
| **Log.mean.pre.extinction** | The mean body mass of the island community prior to extinctions, calculated from log-transformed body mass values. | Log gram |
| **Reversed.log.mean.pre.extinction** | The mean body mass for the island community that was calculated from log-transformed body mass values, converted back into grams by taking its exponent. | Gram |
| **Max.mass.post.extinction** | The maximum body mass of the frugivore community (birds, mammals, reptiles) after extinctions took place. | Gram |
| **Log.mean.post.extinction** | The mean body mass of the island community after extinctions, calculated from log-transformed body mass values. | Log gram |
| **Reversed.log.mean.post.extinction** | The maximum body mass for the island community that was calculated from log-transformed body mass values, converted back into grams by taking its exponent. | Gram |
| **Grams.change.in.Max.mass** | The difference between maximum body mass of frugivore communities on the island before and after extinctions. Pre-extinction (extant and extinct) - post-extinction (extant) | Gram |
| **Grams.change.in.mean** | The difference between mean body mass of frugivore communities on the island before and after extinctions. Pre-extinction (extant and extinct) - post-extinction (extant). | Gram |
| **Proportional.loss.mean.mass** | The percentage of the original mean body mass of the frugivore community that has been lost. Proportional.loss.mean.mass = Grams.change.in.mean / Reversed.log.mean.pre.extinction | Proportions |
| **Proportional.loss.max.mass** | The percentage of the original maximum body mass of the frugivore community that has been lost. Proportional.loss.max.mass = ((Max.mass.pre.extinction - Max.mass.post.extinction) / Max.mass.pre.extinction) | Proportions |
| **Species.richness.pre.extinction** | The number of species of birds, mammals and reptiles on the island, prior to extinctions. Not all islands have all taxonomic classes. | Numbers |
| **Species.richness.post.extinction** | The number of species of birds, mammals and reptiles on the island, after extinctions. Not all islands have all taxonomic classes. | Numbers |
| **Number.extinct** | The sum of the number of extinct species of birds, mammals and reptiles on the island. Not all islands have all taxonomic classes. | Numbers |
| **Proportion.richness.lost** | The proportion of the pre-extinction species richness that has gone extinct. Proportion.richness.lost = Number.extinct / Species.richness.pre.extinction | Proportions |
| **ID.mass.loss** | Identification number based on the order of reduction in mean body mass. High numbers indicate a high loss of mean mass. This is used to assign a location in the density strip figure. | Numbers |

**References**

Weigelt, P., Jetz, W. & Kreft, H. (2013) Bioclimatic and physical characterization of the world’s islands. *Proceedings of the National Academy of Sciences,* **110,** 15307-15312.