App.1 Overview of main introduced vertebrates established in native land ecosystems *on Réunion, Mauritius mainland and Mauritius northern islets ("FI" Flat Island", "GI" Gabriel Island, "GQ" Gunner's Quoin, "RI" Round Island, "SI" Serpent Island). Diet: "F" frugivore, "G" granivore, "H", herbivore, "I" diet mostly composed of invertebrates, "O" omnivore including vertebrates, "P+" mostly predator, "P-" diet that sometimes includes vertebrates; "*" several species in the same genus; "#" species introduced as taxon substitutes. Dates in red symbolize the introduced species that went extinct in the meantime. Date: "<" before, ">" after. References: "1" (Cheke, 2010), "2" (Cheke and Hume, 2008), "3" (Bissessur and Probst, 2018), "4" (Barré et al., 2005), "5" (Hume, 2013), "6" (Griffiths et al., 2011), "7" (Cole, 2012), "8" (Cheke, 2013), "9" (Cole, 2009), "10" (Guillermet et al., 1998).*

Taxon		Diet	Réunion	Mauritius	Mauritius islets	Ref
Amphibia						
Guttural toad	*Amietophrynus gutturalis*	I	1927	1922	-	1,2
Malagasy grass frog	*Ptychadena mascaren.*	I	1790	1760	-	2
Aves						
Common myna	*Acridotheres tristis*	F I P-	1759	1762	1965 GQ	1,2
Grey-headed lovebird	*Agapornis canus*	F G	1840	1730	-	2
Red avadavat	*Amandava amandava*	G	1750	1745	-	2
Feral pigeon	*Columba livia*	G I	1800	1830	-	2
Black parrot	*Coracopsis* sp	F	1790	-	-	2
House crow	*Corvus splendens*	O	-	1880	-	1-3
Common quail	*Coturnix coturnix*	G	1860	1885	-	2
Common waxbilll	*Estrilda astrild*	G	1820	1810	1900 FI, 1990 GQ	2
Painted quail	*Excalfactoria chinensis*	G	1820	1775	-	2
Cardinal fody	*Foudia madagascariensis*	G	1765	1765	1965 FI	2
Grey francolin	*Francolinus pondicerianus*	G	1845	1740	20th FI GQ	2,3
Red junglefowl	*Gallus gallus*	F G H I	1892	1705	-	2
Zebra dove	*Geopelia striata*	I H	1790	1760	19th RI FI, 20th GI GQ	2
Common hill myna	*Gracula religiosa*	F I P-	>1970	-	-	4
Helmeted Guineafowl	*Numida meleagris*	F G H I	1710	1720	1905 FI	2
Red-billed leiothrix	*Leiothrix lutea*	F	1980	-	-	4
Finches (2-3 species)	*Lonchura* spp*	G	1770	1740	Late 20th GQ RI	2
Malagasy partridge	*Margaroperdix madagascar.*	G I	1840	1740	-	2
Madagascar turtle-dove	*Nesoenas picturatus*	F G I	1660	1800	-	5
House sparrow	*Passer domesticus*	G	1845	1850	1965 FI, 1990 RI GI	2
Jungle bush quail	*Perdicula asiatica*	G I	1845	1855	-	2
Village weaver	*Ploceus cucullatus*	G I	1880	1885	-	2
Ring-necked parakeet	*Psittacula krameri*	F	-	1885	-	2
Red-whiskered bulbul	*Pycnonotus jocosus*	F	1970	1892	Late 20th FI GI GQ	1,2
Canaries (2 species)	*Serinus* spp*	G	1770	1755	1965 FI	2
Doves (2 species)	*Spilopelia* spp*	G H	-	1765	1950 GQ	2
Mammalia						
Cattle	*Bos taurus*	H	1629	1606	1800	1,2
Goat	*Capra hircus*	H	1612	1606	19th	1,2
Deer	*Cervus timorensis*	H	1758	1639	20th	1,2
Horse	*Equus ferus*	H	-	1670	-	1,2
Lemur	*Eulemur fulvus*	F H	1820	-	-	1,2
Cat	*Felis catus*	P+	1680	1680s	19th	1,2
Palm squirrel	*Funambulus palmarum*	F G	1858	-	-	2
Mongoose	*Herpestes auropunctatus*	P+	-	1900	-	1,2
Hare	*Lepus nigricollis*	H	1777	1735	19th	1,2
Macaque	*Macaca fascicularis*	O	-	1602	-	1,2
Mouse	*Mus musculus*	O	<1754	<1750	19th	1,2
Rabbit	*Oryctolagus cuniculus*	H	-	1755	19th	1,2
Brown rat	*Rattus norvegicus*	O	1735	1735	19th	1,2
Ship rat	*Rattus rattus*	O	1674	14th	19th	5
Greater Tenrec	*Setifer setosus*	I	-	1790	-	1,2
Musk shrew	*Suncus murinus*	I	1730s	1765	-	1,2
Pig	*Sus scrofa*	O	1629	1606	-	1,2
Tenrec	*Tenrec ecaudatus*	F I	1801	1785	-	1,2
Chelonii						
Aldabra giant tortoise #	*Aldabrachelys gigantea #*	F H	-	-	1880 FI; 21st RI	2,6,7
Radiated tortoise #	*Astrochelys radiata #*	F H	-	-	21st RI	7
Wattle-necked Softshell Turtle	*Palea steindachneri*	O	-	1920	-	8
Red-eared slider	*Trachemys scripta*	H I	-	1980	-	9
Squamata						
Rainbow agama	*Agama agama*	I P-	1997	-	-	10
Oriental garden lizard	*Calotes versicolor*	I P-	1870	1900	-	2,9
Square-toed gecko	*Ebenavia inunguis*	I	-	1880	-	9
Panther Cameleon	*Furcifer pardalis*	I	1830	1825	-	2
Asian geckos (2 species)	*Hemidactylus* spp*	I	1860	1760	1990 FI GI	2
Common worm gecko	*Hemiphyllodactylus typus*	I	1965	1880	-	2
Indian wolf snake	*Lycodon aulicus*	P+	1835	1870	-	2,9
Mada. Geckos (2 species)	*Phelsuma* spp*	I P-	1980	1980	-	1,2,9

App.2 Changes in native habitats on Réunion since the beginning of permanent colonization in 1665 (in black). *Note that 100 km2 of unfavorable areas have been excluded from analyses (mostly recent lava flows in the caldera southeast of the island).*

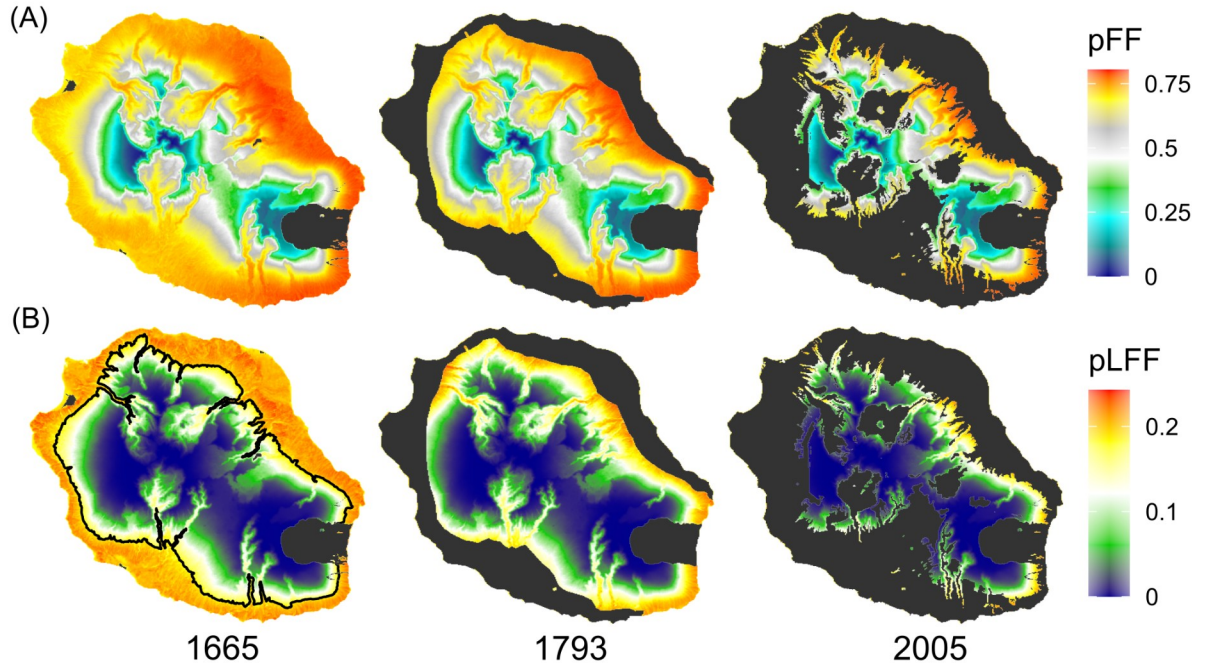
App.3 Methods for modeling the spatial distribution of (large) fleshy-fruited plants on Réunion. *For the proportion of fleshy-fruited plants within woody plant communities, the material and methods are the same as in Albert et al (2018). A binomial GLM with spatial filtering was used to model the proportion of fleshy-fruited plants depending on a dozen non-collinear climato-topographic variables, including elevation and precipitation of the driest month. Once the best model was selected, the bivariate relationship between the proportion of fleshy-fruited plants and elevation was represented by setting the other significant variables to their average value. In order to understand what the former distribution of fleshy-fruited plants may have been before the transformation of habitats, we finally modeled the map of the proportions of fleshy-fruited plants by interpolation of environmental predictors of the best GLM.*

In the present study, we also modeled the spatial distribution of large fleshy-fruited woody plants. We used the same sampling as in Albert et al. (2018), but categorized the woody species as either "large fleshy-fruited" (i.e. mean fruit diameter > 13 mm) or "other" (therefore including small fleshy-fruited and dry-fruited woody plants). This fruit typology was based on local measurements and allowed the delimitation of a group of plant species that cannot be swallowed by the largest extant native frugivore on Reunion, Hypsipetes borbonicus. *Using ($n_{large\ fleshy\text{-}fruited\ species}$ versus $n_{other\ woody\ species}$) for the binary response of the binomial GLM, we then applied the same analyses as above to model the proportions of large fleshy-fruited species.*

Reference : Albert, S., Flores, O., Rouget, M., Wilding, N., and Strasberg, D. (2018). Why are woody plants fleshy-fruited at low elevations? Evidence from a high-elevation oceanic island. J. Veg. Sci. 29, 847–858. doi:10.1111/jvs.12676.

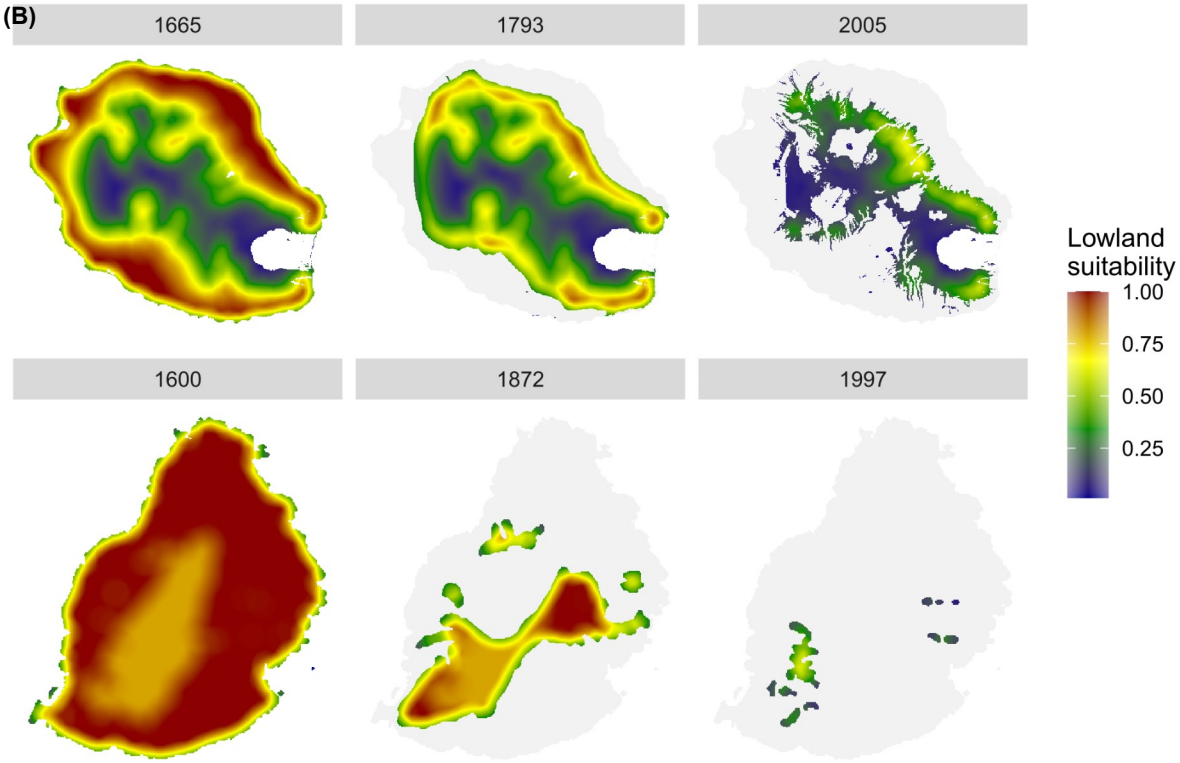
App.4. Modeling of the spatial distribution of (large) fleshy-fruited plants on Réunion with masks of habitat transformation in 1793 and 2005*. Areas rich and poor in native (large) fleshy-fruited plants are respectively shown in warm and cool colors* ***(A)*** *Proportion of fleshy-fruited plants among woody plant communities (pFF).* ***(B)*** *Proportion of large fleshy-fruited plants among woody plant communities (pLFF). The 400 m asl contour line is given by the black line.*

The modeling of pFF and pLFF displayed high pseudo-R² of 0,82 and 0,74, respectively. In both cases, elevation was by far the best predictor. The effect of precipitation of the driest month, while significant for pFF, was small. For more details about statistical results, please report to Albert et al (2018).



App.5 Assessment of lowland suitability since first human settlements taking into account the fragmentation of native habitats on Réunion and Mauritius. *For each island, we used a Digital Elevation Model of 150 m resolution.* ***(A)*** *Suitability values were assigned to pixels of native forests from 1 at sea level to 0,025 for high elevations using a simple elevational typology. A value of zero was assigned to the ocean and transformed habitats. While in the latter case this value might seem exaggerated, it takes into account the fact that native vertebrates were subject to very strong anthropogenic pressures there. We then calculated for each pixel the average of pixel values within a radius of 2.5 km.* ***(B)*** *Habitat suitability is displayed by a color gradient: warm and cool colors show high and low quality of habitats for forest vertebrates, respectively. Top, Réunion; bottom, Mauritius.*

(A) Island	Sea	Transformed habitats	0 - 400 m	400 - 800 m	800 - 1200 m	1200 - 1600 m	1600 - 2000 m	2000 - 2400 m	2400 - 3000 m
Mauritius	0	0	1	0,8	-	-	-	-	-
Réunion	0	0	1	0,8	0,4	0,2	0,1	0,05	0,025



App.6 Location of vegetation surveys in relation with precipitation of the driest month on Réunion. *The 430 historical plots used for statistical analyses are shown in white and values of precipitation derived from 30-year averages. The colour gradient is deliberately saturated above 100 mm.*