

Supplementary Material

Introduced rat assemblage affects feral cat threat to biodiversity in French Polynesian islands

P. Palmas^{A,B,C,*}, *J.-Y. Meyer*^D, *E. Chailier*^A, *H. De Méringo*^{C,E}, *E. Vidal*^F, *J.-C. Gaertner*^G, *R. Bambridge*^H, *T. Mooroa*^H, *I. Hurahutia*^I, *G. Teatiu*^J, *S. Teatiu*^J, and *T. Timau*^K

^AUniversité de la Polynésie Française, UMR-241 EIO, Tahiti, French Polynesia.

^BEcoTer, BP64182, 98702 Faa'a, Tahiti, French Polynesia.

^CInstitut Méditerranéen de Biodiversité et d'Écologie Marine et Continentale (IMBE), Aix Marseille Université, CNRS, IRD, Avignon Université, France & Centre IRD de Nouméa, BPA5, 98848 Nouméa cedex, New Caledonia.

^DDélégation à la Recherche, Gouvernement de la Polynésie Française, BP 20981, 98713 Papeete, Tahiti, French Polynesia.

^EInstitut Méditerranéen de Biodiversité et d'Écologie Marine et Continentale (IMBE), Aix Marseille Université, CNRS, IRD, Avignon Université, Europôle de l'Arbois, BP 80, 13545, Aix-en-Provence, France.

^FUMR ENTROPIE, (IRD, Université de La Réunion, CNRS, Université de La Nouvelle-Calédonie, Ifremer), Centre IRD, BP A5, 98848 Nouméa, New Caledonia.

^GIRD, UMR-241 EIO, Labex Corail, Tahiti, French Polynesia.

^HAssociation Rima'ura, 98752 Amaru, Rimatara, French Polynesia.

^IAssociation Te Aru Ora, 98753 Moerai, Rurutu, French Polynesia.

^JMairie de Ua Huka, 98756 Vaipae, Ua Huka, French Polynesia.

^KAssociation TE IMA HA'ATUPUA'E O UAVAI, 98746 Vaitahu, Tahuata, French Polynesia.

*Correspondence to: P. Palmas Université de la Polynésie Française, UMR-241 EIO, Tahiti, French Polynesia Email: palmas.pauline@gmail.com

Table S1. Main natural habitat/vegetation types and elevation range (measured according to GPS) of the sites where camera traps were installed and scats collected. LIT = littoral/coastal and supra-littoral forests; MES = low elevation dry to mesic forests; RID = mid-elevation mesic to wet ridge or plateau forests; VAL = mid- to upper elevation wet/rain valley forests; MON = montane cloud forests; COC = coconut plantations; URB = low elevation urbanised areas (villages)

Archipelago	Society		Marquesas		Austral	
Island	Tahiti	Moorea	Ua Huka	Tahuata	Rurutu	Rimatara
Cameras	VAL, RID (510-605 m)	VAL (214- 280 m)	VAL, RID (285-530 m)	VAL, RID (120-330 m) + COC	VAL, RID (185-340 m)	VAL, RID (45-80 m) + COC
Scats	URB, VAL, RID (20- 280 m) (535-805 m), MON (1200-1380 m)	LIT, URB, VAL, RID, (0-525 m)	LIT, URB, MES, VAL, RID (5-580 m)	LIT, URB, MES, VAL, RID (0-560 m) + COC	LIT, URB, VAL, RID (0-340 m) + COC	LIT, URB, VAL, RID + COC (0- 80 m)
Camera trap days	530	536	502	442	259	268
Capture events	117	15	387	96	31	149
General Index (GI ± SE)	0.30±0.12	0.02±0.02	0.75±0.20	0.20±0.06	0.06±0.04	0.19±0.05

Table S2. Bird species identified in feral cat diet at study sites, with their biogeographical and conservation status (Thibault and Cibois, 2017; IUCN Red List, www.iucnredlist.org)

Common name	Scientific name	Biogeographical status	IUCN status	Studied site/island
Northern Marquesan reed warbler	<i>Acrocephalus percernis</i>	Marquesas (Northern group) endemic	LC	Ua Huka
Rimatara reed warbler	<i>Acrocephalus rimitarae</i>	Rimatara endemic	CR	Rimatara
Marquesan swiftlet	<i>Aerodramus ocistus</i> (<i>syn. Colocallia ocista</i>)	Marquesas endemic	LC	Ua Huka
Zebra dove	<i>Geopelia striata</i>	Introduced	LC	Moorea
Common White-Tern	<i>Gygis alba</i>	Native	LC	Ua Huka
Pacific Swallow	<i>Hirundo tahitica</i>	Native	LC	Ua Huka
Chestnut-breasted Mannikin	<i>Lonchura castaneothorax</i>	Introduced	LC	Ua Huka
Sooty tern	<i>Onychoprion fuscatus</i>	Native	LC	Ua Huka
Iphis monarch	<i>Pomarea iphis</i>	Ua Huka endemic	CR	Ua Huka
White-capped fruit dove	<i>Ptilinopus dupetithouarsii</i>	Marquesas endemic	LC	Tahuata
Grey-green Fruit Dove	<i>Ptilinopus purpuratus</i>	Society endemic	LC	Tahiti

Baillon's Shearwater *Puffinus bailloni* Native LC Ua Huka
or Tropical shearwater (anc. *Puffinus lherminieri*)
Audubon's Shearwater)

Crimson-backed Tanager	<i>Ramphocelus dimidiatus</i>	Introduced	LC	Ua Huka
-------------------------------	-------------------------------	------------	----	---------

Kuhl's lorikeet	<i>Vini kuhlii</i>	Rimatara	CR	Rimatara
------------------------	--------------------	----------	----	----------

endemic*

Ultramarine Lorikeet	<i>Vini ultramarina</i>	Ua Huka	CR	Ua Huka
-----------------------------	-------------------------	---------	----	---------

endemic

* the species was reintroduced in Atiu, Cook Islands in 2007 (van der Vliet, and Ghestemme 2013).

Table A1. Main natural habitat/vegetation types and elevation range (measured according to GPS) of the sites where camera traps were installed and scats collected. LIT = littoral/coastal and supra-littoral forests; MES = low elevation dry to mesic forests; RID = mid-elevation mesic to wet ridge or plateau forests; VAL = mid- to upper elevation wet/rain valley forests; MON = montane cloud forests; COC = coconut plantations; URB = low elevation urbanised areas (villages)

Archipelago	Society		Marquesas		Austral	
Island	Tahiti	Moorea	Ua Huka	Tahuata	Rurutu	Rimatara
Cameras	VAL, RID (510-605 m)	VAL (214- 280 m)	VAL, RID (285-530 m)	VAL, RID (120-330 m) + COC	VAL, RID (185-340 m)	VAL, RID (45-80 m) + COC
Scats	URB, VAL, RID (20- 280 m) (535-805 m), MON (1200-1380 m)	LIT, URB, VAL, RID, (0-525 m)	LIT, URB, MES, VAL, RID (5-580 m)	LIT, URB, MES, VAL, RID (0-560 m) + COC	LIT, URB, VAL, RID (0-340 m) + COC	LIT, URB, VAL, RID + COC (0- 80 m)
Camera trap days	530	536	502	442	259	268
Capture events	117	15	387	96	31	149
General Index (GI ± SE)	0.30±0.12	0.02±0.02	0.75±0.20	0.20±0.06	0.06±0.04	0.19±0.05

Table A2. Bird species identified in feral cat diet at study sites, with their biogeographical and conservation status (Thibault and Cibois, 2017; IUCN Red List, www.iucnredlist.org)

Common name	Scientific name	Biogeographical status	IUCN status	Studied site/island
Northern Marquesan reed warbler	<i>Acrocephalus percernis</i>	Marquesas (Northern group) endemic	LC	Ua Huka
Rimatara reed warbler	<i>Acrocephalus rimitarae</i>	Rimatara endemic	CR	Rimatara
Marquesan swiftlet	<i>Aerodramus ocistus</i> (<i>syn. Colocallia ocista</i>)	Marquesas endemic	LC	Ua Huka
Zebra dove	<i>Geopelia striata</i>	Introduced	LC	Moorea
Common White-Tern	<i>Gygis alba</i>	Native	LC	Ua Huka
Pacific Swallow	<i>Hirundo tahitica</i>	Native	LC	Ua Huka
Chestnut-breasted Mannikin	<i>Lonchura castaneothorax</i>	Introduced	LC	Ua Huka
Sooty tern	<i>Onychoprion fuscatus</i>	Native	LC	Ua Huka
Iphis monarch	<i>Pomarea iphis</i>	Ua Huka endemic	CR	Ua Huka
White-capped fruit dove	<i>Ptilinopus dupetithouarsii</i>	Marquesas endemic	LC	Tahuata
Grey-green Fruit Dove	<i>Ptilinopus purpuratus</i>	Society endemic	LC	Tahiti

Baillon's Shearwater *Puffinus bailloni* Native LC Ua Huka
or Tropical shearwater (*anc. Puffinus lherminieri*)
Audubon's Shearwater)

Crimson-backed Tanager	<i>Ramphocelus dimidiatus</i>	Introduced	LC	Ua Huka
-------------------------------	-------------------------------	------------	----	---------

Kuhl's lorikeet	<i>Vini kuhlii</i>	Rimatara	CR	Rimatara
------------------------	--------------------	----------	----	----------

endemic*

Ultramarine Lorikeet	<i>Vini ultramarina</i>	Ua Huka	CR	Ua Huka
-----------------------------	-------------------------	---------	----	---------

endemic

* the species was reintroduced in Atiu, Cook Islands in 2007 (van der Vliet, and Ghestemme 2013).