# Ecography

### E5383

Hamilton, A. M., Hartman, J. H. and Austin, C. C. 2009. Island area and species diversity in the southwest Pacific Ocean: is the lizard fauna of Vanuatu depauperate? – Ecography 32: 247–258.

## Supplementary material

Appendix 1. Species lists of lizards for island groups included in this analysis. *Hemidactylus frenatus*, *H. garnotii*, and *Lepidodactylus lugubris* are considered introduced to all island groups included in this comparison and therefore are not included below. This list represents a conservative estimate of the true native reptile diversity within each island group as we did not include currently undescribed taxa, and considered a species introduced if a previous worker indicated the distribution was likely the result of an introduction and provided supporting data. Endemic species have a distribution restricted to a single archipelago. We used published literature (published prior to 1 August 2008), personal field observations, and unpublished molecular data to develop this list; the primary source(s) for each record is included with the record and references are provided below the table.

| Taxon                 | Solomon<br>Islands | Fiji Archipelago | Vanuatu<br>Archipelago | Samoan<br>Islands | Tongan<br>Archipelago | New Caledonia | Loyalty Islands |
|-----------------------|--------------------|------------------|------------------------|-------------------|-----------------------|---------------|-----------------|
| AGAMIDAE              |                    |                  |                        |                   |                       |               |                 |
| Hypsilurus godeffroyi | Native (1)         |                  |                        |                   |                       |               |                 |
| DIPLODACTYLIDAE       |                    |                  |                        |                   |                       |               |                 |
| Bavayia crassicollis  |                    |                  |                        |                   |                       | Native (18)   | Native (18)     |
| Bavayia cyclura       |                    |                  |                        |                   |                       | Native (18)   | Native (18)     |
| Bavayia exsuccida     |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia geitaina      |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia goroensis     |                    |                  |                        |                   |                       | Endemic (2)   |                 |
| Bavayia madjo         |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia montana       |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia ornata        |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia pulchella     |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia robusta       |                    |                  |                        |                   |                       | Endemic (18)  |                 |
| Bavayia sauvagii      |                    |                  |                        |                   |                       | Endemic (18)  | Native (18)     |
| Bavayia septuiclavis  |                    |                  |                        |                   |                       | Endemic (18)  |                 |

Dierogekko inexpectatus Dierogekko insularis Dierogekko kaalaensis Dierogekko kaalaensis Dierogekko koniambo Dierogekko nehoueensis Dierogekko poumensis Dierogekko poumensis Dierogekko validiclavis Eurydactylodes agricolae Eurydactylodes agricolae Eurydactylodes symmetricus Eurydactylodes vieillardi Oedodera marmorata Rhacodactylus auriculatus Rhacodactylus chahoua Rhacodactylus ciliatus Rhacodactylus leachianus Rhacodactylus sarasinorum Rhacodactylus trachyrhynchus

#### Endemic (19) Endemic (20) Endemic (18) Endemic (18) Endemic (21) Endemic (18) Endemic (18) Endemic (18) Endemic (18) Endemic (18)

Endemic (18)

#### Gekkonidae

| Cyrtodactylus biordinis       | Endemic (1)      |                  |                    |                     |              |              |                 |
|-------------------------------|------------------|------------------|--------------------|---------------------|--------------|--------------|-----------------|
| Cyrtodactylus louisiadensis   | Native (1)       |                  |                    |                     |              |              |                 |
| Cyrtodactylus salomonensis    | Endemic (28)     |                  |                    |                     |              |              |                 |
| Gehyra mutilata               | Introduced (3,4) | Introduced (3,4) | Introduced (3,4)   | Introduced (3,4,27) |              |              |                 |
| Gehyra oceanica               | Native (1)       | Native (5,6)     | Native (10,11)     | Native (27)         | Native (10)  |              |                 |
| Gehyra vorax                  | Native (1)       | Native (5,6)     | Native (10,11)     |                     | Native (10)  | Native (18)  | Native (18)     |
| Gekko vittatus                | Native (1)       |                  | Native (11)        |                     |              |              |                 |
| Hemiphyllodactylus typus      | Native (1)       | Native (5,6)     | Native (10)        |                     | Native (10)  | Native (18)  | Introduced (26) |
| Lepidodactylus euaensis       |                  |                  |                    |                     | Endemic (10) |              |                 |
| Lepidodactylus flaviocularis  | Endemic (1)      |                  |                    |                     |              |              |                 |
| Lepidodactylus gardineri      |                  | Endemic (5,6)    |                    |                     |              |              |                 |
| Lepidodactylus guppyi         | Native (1)       |                  |                    |                     |              |              |                 |
| Lepidodactylus manni          |                  | Endemic (5,6)    |                    |                     |              |              |                 |
| Lepidodactylus mutahi         | Endemic (1)      |                  |                    |                     |              |              |                 |
| Lepidodactylus shebae         | Endemic (1)      |                  |                    |                     |              |              |                 |
| Lepidodactylus vanuatuensis   |                  |                  | Endemic (11,12)    |                     |              |              |                 |
| Nactus multicarinatus         | Native (1)       |                  | Native (10,11, 13) |                     |              |              |                 |
| Nactus pelagicus              | Native (1)       | Native (5,6)     | Native (10,11, 13) | Native (27)         | Native (10)  | Native (18)  |                 |
| Perochirus guentheri          |                  |                  | Endemic (10)       |                     |              |              |                 |
| IGUANIDAE                     |                  |                  |                    |                     |              |              |                 |
| Brachylophus fasciatus        |                  | Native (5,6)     |                    |                     | Native (10)  |              |                 |
| Brachylophus vitiensis        |                  | Endemic (5,6)    | Introduced (10)    |                     | · · · ·      |              |                 |
| Scincidae                     |                  |                  |                    |                     |              |              |                 |
| Caledoniscincus aquilonius    |                  |                  |                    |                     |              | Endemic (18) |                 |
| Caledoniscincus atropunctatus |                  |                  | Native (11,14)     |                     |              | Native (18)  | Native (18)     |
| Cuicaoniscincus arropanciarus |                  |                  | Trative (11,14)    |                     |              | Trative (10) | Trative (10)    |

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| Caledoniscincus auratus<br>Caledoniscincus austrocaledonicus<br>Caledoniscincus chazeaui<br>Caledoniscincus cryptos<br>Caledoniscincus festivus<br>Caledoniscincus haplorhinus<br>Caledoniscincus orestes<br>Caledoniscincus renevieri<br>Caledoniscincus terma<br>Carlia fusca | Native (1)                 |                |                               |                 |                  | Endemic (18)<br>Native (18)<br>Endemic (18)<br>Endemic (18)<br>Native (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18) | Native (18)<br>Native (18) |
|---|----------------------------|----------------|-------------------------------|-----------------|------------------|--|----------------------------|
| Corucia zebrata   | Endemic (1)                |                |                               |                 |                  |  |                            |
| Cryptoblepharus eximius   |                            | Native (5,6,7) |                               |                 |                  |  |                            |
| Cryptoblepharus novocaledonicus   |                            |                |                               |                 |                  | Native (7,18)  | Native (7,18)              |
| Cryptoblepharus novahebridicus  |                            |                | Endemic (10,11)               |                 |                  |  |                            |
| Cryptoblepharus poeciloplerus   | Native (1)                 |                |                               | Native (27)     | Native (10)      |  |                            |
| Emoia adspersa  |                            |                |                               | Endemic (27)    |                  |  |                            |
| Emoia aneityumensis   |                            |                | Endemic (10,11,15)            |                 |                  |  |                            |
| Emoia atrocostata   | Native (1)                 | T 1 1 (C)      | Native (10,11,15)             |                 |                  |  |                            |
| Emoia caeruleocauda   | Native (1)                 | Introduced (6) | Native (10,11,15)             |                 |                  |  |                            |
| Emoia campbelli<br>Emoia concolor   |                            | Endemic (5,6)  |                               |                 |                  |  |                            |
| Emoia concolor<br>Emoia cyanogaster   | Native (1)                 | Native (5,6)   | Native (10,11,15)             |                 |                  |  |                            |
| Emoia cyanogasier<br>Emoia cyanura  | Native (1)                 | Native (5,6)   | Native (10,11,15)             | Native (15,27)  | Native (10,15)   |  | Native (26)                |
| Emoia cyanara<br>Emoia erroran  | INALIVE (1)                | Inative (J,0)  | Endemic (10,11,15)            | (1), 2/)        | Inallive (10,13) |  | Inative (20)               |
| Emoia flavigularis  | Endemic (1)                |                | Lindeline (10,11,1 <i>)</i> ) |                 |                  |  |                            |
| Emoia impar   | Native (1)                 | Native (5,6)   | Native (11,16,17)             | Native (15,27)  | Native (10,15)   |  |                            |
| Emoia isolata   | Endemic (1)                | (1,0)          | (11,10,17)                    | (19,27)         | (10,1 <i>)</i>   |  |                            |
| Emoia jakati  | Native (1)                 |                |                               |                 |                  |  |                            |
| Emoia lawesii   |                            |                |                               | Native (15,27)  | Native (10,15)   |  |                            |
| Emoia loyaltiensis  |                            |                |                               |                 |                  |  | Endemic (26)               |
| Emoia maculata  | Endemic (1)                |                |                               |                 |                  |  | ()                         |
| Emoia mokosariniveikau  |                            | Endemic (5,6)  |                               |                 |                  |  |                            |
| Emoia nigra   | Native (1)                 | Native (5,6)   | Native (10,11,15)             | Native (15,27)  | Native (10,15)   |  |                            |
| Emoia nigromarginata  |                            |                | Endemic (10,11,15)            |                 | ,                |  |                            |
| Emoia parkeri   |                            | Endemic (5,6)  |                               |                 |                  |  |                            |
| Emoia pseudocyanura   | Endemic (1)                |                |                               |                 |                  |  |                            |
| Emoia renellensis   | Endemic (1)                |                |                               |                 |                  |  |                            |
| Emoia rufiabialis   | Endemic (1)                |                |                               |                 |                  |  |                            |
| Emoia samoensis   |                            |                |                               | Endemic (15,27) |                  |  |                            |
| Emoia sanfordi  |                            |                | Endemic (10,11,15)            |                 |                  |  |                            |
| Emoia schmidti  | Endemic (1)                |                |                               |                 |                  |  |                            |
| Emoia taumakoensis  | Endemic (1)                |                |                               |                 |                  |  |                            |
| Emoia tongana   |                            |                |                               | Native (27,28)  | Native (10,15)   |  |                            |
| Emoia trossula  |                            | Native (5,6)   |                               |                 | Native (10)      |  |                            |
| Eugongylus albofasciolatus  | Endemic (1)                |                |                               |                 |                  |  |                            |
| Eugongylus rufescens<br>Geomyersia glabra   | Endemic (1)<br>Endemic (1) |                |                               |                 |                  |  |                            |
| Geomyersia giaora<br>Geoscincus haraldmeieri  | Endemic (1)                |                |                               |                 |                  | Endemic (18)   |                            |
| Geosetheus nutuumetett  |                            |                |                               |                 |                  | Endennie (10)  |                            |

| Graciliscincus shonae<br>Kanakysaurus viviparus<br>Lacertoides pardalis<br>Lamprolepis smaragdina<br>Leiolopisma alazon  | Native (1)   | Endemic (5,6)    |                     |                  |              | Endemic (18)<br>Endemic (22)<br>Endemic (18)  |             |
|--|--|------------------|---------------------|------------------|--------------|---|-------------|
| Lioscincus greeri<br>Lioscincus maruia<br>Lioscincus nigrofasciolatus<br>Lioscincus novaecaledoniae<br>Lioscincus steindachneri<br>Lioscincus tillieri<br>Lioscincus vivae   |  |                  |                     |                  |              | Endemic (18)<br>Endemic (18)<br>Native (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (23)   | Native (18) |
| Lipnia noctua<br>Celatiscincus euryotis<br>Celatiscincus similes<br>Marmorosphax montana<br>Marmorosphax tricolor<br>Nannoscincus exos<br>Nannoscincus garrulus<br>Nannoscincus gracilis<br>Nannoscincus gracilis<br>Nannoscincus manchisteus<br>Nannoscincus hanchisteus<br>Nannoscincus hanchisteus<br>Nannoscincus manautei<br>Nannoscincus manautei<br>Nannoscincus manautei<br>Nannoscincus manautei<br>Nannoscincus selvini<br>Phoboscincus garnieri<br>Phoboscincus garnieri<br>Phoboscincus garnieri<br>Prasinohaema virens<br>Sphenomorphus bignelli<br>Sphenomorphus signelli<br>Sphenomorphus tanneri<br>Sphenomorphus tanneri<br>Sphenomorphus tanneri<br>Sphenomorphus tansversus<br>Sphenomorphus transversus<br>Sphenomorphus transversus<br>Sphenomorphus woodfordi<br>Sigaloseps deplanchei<br>Sigaloseps ruficauda | Native (1,8,9)<br>Native (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1) | Introduced (8,9) | Introduced (8,9,11) | Introduced (8,9) |              | Endemic (24)<br>Endemic (24)<br>Endemic (18)<br>Endemic (18)<br>Endemic (25)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Endemic (18)<br>Native (18)<br>Endemic (18) | Native (18) |
| Simiscincus aurantiacus<br>Tachygia microlepis<br>Tribolonotus blanchardi<br>Tribolonotus ponceletti<br>Tribolonotus pseudoponceletti<br>Tribolonotus schmidti<br>Tropidoscincus aubrianus   | Endemic (1)<br>Endemic (1)<br>Endemic (1)<br>Endemic (1)   |                  |                     |                  | Endemic (10) | Endemic (18)  |             |

#### Tropidoscincus boreus Tropidoscincus variabilis

| VARANIDAE       |            |
|-----------------|------------|
| Varanus indicus | Native (1) |

Primary references for data in Appendix 1: (1) McCoy 2006; (2) Bauer et al. 2008; (3) Fisher 1997; (4) Beckon 1992; (5) Morrison 2003; (6) Zug 1991; (7) unpublished molecular data suggest *Cryptoblepharus eximius* (Fiji) and *C. novocaledonicus* (New Caledonia and Loyalty Islands) are conspecific; neither, therefore, is considered endemic; (8) Austin 1999a; (9) Austin 1999b; (10) Allison 1996; (11) Hamilton unpubl.; (12) Ota et al. 1998; (13) Zug and Moon 1995; (14) Bauer et al. 1992; (15) Brown 1991; (16) Bruna et al. 1995; (17) Bruna et al. 1996; (18) Bauer and Sadlier 2000; (19) Bauer et al. 2006; (20) A. Bauer pers. comm.; (21) Sadlier et al. 2004a; (22) Sadlier et al. 2004b; (23) Sadlier et al. 2006a; (24) Sadlier et al. 2006b; (25) Sadlier and Bauer 1997; (26) Gill 1993a; (27) Zug and Gill 1997; (28) Rosler et al. 2007.