

Jiménez-Uzcátegui, G., Zabala, J., Milstead, B., Snell, H. L. (2012). CDF Checklist of Galapagos Introduced Vertebrates - FCD Lista de especies de Vertebrados introducidos de Galápagos. *In*: Bungartz, F., Herrera, H., Jaramillo, P., Tirado, N., Jiménez-Uzcátegui, G., Ruiz, D., Guézou, A. Ziemmeck, F. (eds.). Charles Darwin Foundation Galapagos Species Checklist - Lista de Especies de Galápagos de la Fundación Charles Darwin. Charles Darwin Foundation / Fundación Charles Darwin, Puerto Ayora, Galapagos: <http://checklists.datazone.darwinfoundation.org/introduced-species/introduced-vertebrates/> Last updated 03 Jul 2012.

CDF Checklist of Galapagos Introduced Vertebrates

Gustavo Jiménez-Uzcátegui, Javier Zabala, Brian Milstead, Howard L. Snell

Contribs.: Paola Buitrón, Jose Calvopiña, Karl Campbell, Victor Carrion, Linda Cayot, Brian Cooke, Felipe Cruz, Mark Gardener, Sandra Landázuri, Alizon Llerena, Cruz Márquez, Brand Phillips, F. Hernán Vargas, David A. Wiedenfeld.

03 Jul 2012

This checklist is automatically generated using Version 3.0 of the online database CDF Galapagos Species Checklist.

Relatively few vertebrate species are known to be introduced to Galapagos. The large majority of vertebrates were brought to Galapagos on purpose. They were introduced for human benefit, such as horses, donkeys, goats, pigs, cattle, dogs and cats. Others, like mice and rats, arrived unintentionally as soon as the first humans explored this archipelago. Although the checklist of introduced vertebrates is quite short and relatively few species were introduced, vertebrates continue to be among the most damaging invaders of the Galapagos natural ecosystems.

Among the worst species are the Norwegian Rat (*Rattus norvegicus*) and the House or Black Rat (*Rattus rattus*); both not only cause economic damage, but they are also effective predators of native species. On many islands introduced rats have caused the extinction of endemic rice rat species. The damage caused by invasive vertebrate species is especially great on the inhabited islands. Cats (*Felis catus*) continue to represent a huge threat to native and endemic bird populations. Feral pigs (*Sus scrofa*) and donkeys (*Equus asinus*) disturb regeneration of natural vegetation, and for many years goats (*Capra hircus*) completely devastated the natural vegetation on most Galapagos Islands.

Introduced already by whalers and pirates, the first human visitors to the Galapagos, the eradication of goats began relatively late. Between 1954 and 1959 goats were first successfully eradicated from Pinta and subsequently on a few of the smaller islands. In 1998, a large-scale eradication project began on the islands of Isabela (Volcán Alcedo) and Santiago. During this Isabela Project, the Charles Darwin Foundation and the Galapagos National Park jointly targeted feral goats with an array of different hunting techniques: using specially trained dogs, small teams of park rangers hunting on foot, tracing sterilized “Judas” goats equipped with radio collars, helped by helicopter hunts and aerial surveys.

Eight years later, in 2006 the project concluded successfully, reporting that all goats had been eradicated from two islands of unprecedented size. This success clearly demonstrates that eradication of vertebrate species is feasible. Unlike invertebrates, which are very difficult to target because of their enormous quantities and effective reproduction strategies and unlike plants, which survive most eradication efforts because of their seed banks, the eradication of vertebrates does not represent such a huge challenge.

Larger animals can be hunted successfully and smaller ones are typically targeted quite effectively with venom. Large scale application of poisoned bait, however, is not without risk for non target species and in 2010/2011 trial eradications of the two introduced rat species are under way for the smaller islands Bartolomé and Rabida.

For marine species distribution data cited in the CDF Galapagos Checklists refer to the five main bioregions of the archipelago (Far Northern, Northern, Western, South Eastern and the Elithabeth Bay Bioregion). For the terrestrial species the more than 120 islands,

islets and small rocks have been aggregated into Islands Groups, thus, for example, the island group “Santa Cruz” includes smaller islands like Santa Fé, Plaza Norte, Plaza Sur, Baltra, Daphne Mayor, Daphne Minor, and others.

Please be aware that the distribution data presented here is automatically generated from specimen records and does not always accurately reflect the known distribution for all species.

IUCN red-list assessments presented here may deviate from the global IUCN list for the following reasons:

- for well known species groups like vascular plants or vertebrates updates proposed to the IUCN are shown instead of the outdated, but currently accepted status;
- for poorly known species groups (e.g., lichenized fungi) a general assessment is currently not possible and the list presented here is a regional red-list list for Galapagos archipelago.

Names of taxa included in this checklist: 37 (36 Accepted), 1 rejected.

Origin of the taxa included: 16 Accidental, 7 Cultivated, 1 Eradicated, 7 Escaped, 6 Intercepted.

1. *Anas platyrhynchos* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Unknown.
References: Jiménez-Uzcátegui, G. et al. (2007), Meyer De Schauensee, R.M. et al. (1966).
2. *Anser anser* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Unknown.
References: Jiménez-Uzcátegui, G. et al. (2007).
3. *Aratinga erythrogenys* Lesson, 1844
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: San Cristóbal.
References: Jiménez-Uzcátegui, G. et al. (2007), Vargas, H. et al. (1996), Wiedenfeld, D.A. et al. (2006).
4. *Bos taurus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Escaped.
Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz.
References: Hoeck, H.N. et al. (1984), Jiménez-Uzcátegui, G. et al. (2007), Wolf, T. et al. (1892).
5. *Bubulcus ibis* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Floreana, Santa Cruz.
References: Jiménez-Uzcátegui, G. et al. (2008), Jiménez-Uzcátegui, G. et al. (2007), Lévêque, R. et al. (1966), Pérez, S. et al. (1987), Swash, A. et al. (2000), Wiedenfeld, D.A. et al. (2006).
6. *Canis lupus familiaris* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Escaped.
Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz.
References: Barnett, B.D. et al. (1986), Gingrich, E.N. et al. (2010), Heyerdahl, T. et al. (1956), Hoeck, H.N. et al. (1984), Jiménez-Uzcátegui, G. et al. (2007), Levy, J.K. et al. (2008), Tapia, W. et al. (2000).
7. *Capra hircus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Escaped.

Galapagos Distribution: Española, Floreana, Isabela, Marchena, Pinta, San Cristóbal, Santa Cruz, Santa Fé, Santiago.

References: Black, J. et al. (1973), Campbell, K. et al. (2004), Hamann, O. et al. (1975), Heyerdahl, T. et al. (1956), Hoeck, H.N. et al. (1984), Jiménez-Uzcátegui, G. et al. (2007).

8. *Cavia porcellus* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

Galapagos Distribution: Isabela, San Cristóbal, Santa Cruz.

References: Hoeck, H.N. et al. (1984), Jiménez-Uzcátegui, G. et al. (2007), Patry, M. et al. (2002).

9. *Columba livia* Gmelin, 1789

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Eradicated.

Galapagos Distribution: San Cristóbal, Santa Cruz.

References: Harmon, W.M. et al. (1987), Jiménez-Uzcátegui, G. et al. (2007), Padilla, L.R. et al. (2004), Parker, P.G. et al. (2006), Wiedenfeld, D.A. et al. (2006).

10. *Coturnix coturnix* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

Galapagos Distribution: Unknown.

References: Jiménez-Uzcátegui, G. et al. (2007).

11. *Crotophaga ani* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Escaped.

Galapagos Distribution: Fernandina, Floreana, Genovesa, Marchena, Pinta, Santa Cruz.

References: Fessler, B. et al. (2002), Harris, M.P. et al. (1973), Jiménez-Uzcátegui, G. et al. (2008), Jiménez-Uzcátegui, G. et al. (2007), Patry, M. et al. (2002), Tapia, W. et al. (2000), Wiedenfeld, D.A. et al. (2006).

12. *Equus asinus* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Escaped.

Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz, Santiago.

References: Carrión, V. et al. (2006), Coulter, J. et al. (1845), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007).

13. *Equus caballus* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz.

References: Carrión, V. et al. (2006), Coulter, J. et al. (1845), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007).

14. *Eumeces inexpectatus* Taylor, 1932

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Intercepted.

Galapagos Distribution: Santa Cruz.

References: Jiménez-Uzcátegui, G. et al. (2007).

15. *Felis catus* Schreber, 1775

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Escaped.

Galapagos Distribution: Fernandina, Floreana, Isabela, San Cristóbal, Santa Cruz.

References: Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007), Levy, J.K. et al. (2008), Naveda, B. et al. (1949), Salvin, O. et al. (1876).

16. *Gallus gallus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Floreana, San Cristóbal, Santa Cruz.
References: Gottdenker, N.L. et al. (2005), Jiménez-Uzcátegui, G. et al. (2007), Parker, P.G. et al. (2006), Soos, C. et al. (2008), Thiel, T. et al. (2005), Wiedenfeld, D.A. et al. (2006).
17. *Gonatodes caudiscutatus* Günther, 1859
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: San Cristóbal, Santa Cruz.
References: Jiménez-Uzcátegui, G. et al. (2007), Olmedo, L.J. et al. (1994), Olmedo, L.J. et al. (1994), Van Denburgh, J. et al. (1912), Vanzolini, P.E. et al. (1965).
18. *Homo sapiens sapiens* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz, Santiago.
19. *Iguana iguana* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Intercepted.
Galapagos Distribution: Isabela, San Cristóbal, Santa Cruz.
References: Jiménez-Uzcátegui, G. et al. (2007).
20. *Lepidodactylus lugubris* Duméril Bibron, 1836
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Isabela, Marchena, San Cristóbal, Santa Cruz.
References: Carrillo, E. et al. (2005), Jiménez-Uzcátegui, G. et al. (2007), Olmedo, L.J. et al. (1994), Olmedo, L.J. et al. (1994), Wright, J.W. et al. (1983).
21. *Meleagris gallopavo* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Unknown.
References: Jiménez-Uzcátegui, G. et al. (2007).
22. *Mus musculus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz, Santiago.
References: Harris, D.B. et al. (2006), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007), Patry, M. et al. (2002).
23. *Numida meleagris* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Unknown.
References: Jiménez-Uzcátegui, G. et al. (2007).
24. *Oreochromis niloticus* (Linnaeus, 1758)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Unknown.
References: Appeltans, W. et al. (2010), Jiménez-Uzcátegui, G. et al. (2007), Toral, V. et al. (2006).
25. *Oryctolagus cuniculus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Santa Cruz.

References: Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007).

26. *Ovis ariens* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Cultivated.
Galapagos Distribution: Unknown.
References: Hoeck, H.N. et al. (1984), Jiménez-Uzcátegui, G. et al. (2007), Patry, M. et al. (2002).
27. *Pavo muticus* Linnaeus, 1766
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Unknown.
References: Jiménez-Uzcátegui, G. et al. (2007).
28. *Phyllodactylus reissi* Peters, 1862
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: San Cristóbal, Santa Cruz.
References: Carrillo, E. et al. (2005), Garman, S. et al. (1892), Jiménez-Uzcátegui, G. et al. (2007), Olmedo, L.J. et al. (1994), Olmedo, L.J. et al. (1994), Slevin, J.R. et al. (1935).
29. *Podocnemis unifilis* Troschel, 1848
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Intercepted.
IUCN Red List: Vulnerable.
Galapagos Distribution: San Cristóbal.
References: Jiménez-Uzcátegui, G. et al. (2007).
30. *Rattus norvegicus* Berkenhout, 1769
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz, Santiago.
References: Harris, D.B. et al. (2006), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007).
31. *Rattus rattus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
Galapagos Distribution: Fernandina, Floreana, Isabela, Marchena, Pinzón, San Cristóbal, Santa Cruz, Santiago.
References: Harris, D.B. et al. (2006), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007).
32. *Rhinella marina* (Linnaeus, 1758)
Taxon status: Accepted name; taxon occurs in Galapagos.
 Syn.: Bufo sp.; Rana marina, Linnaeus, 1758; Bufo marinus (Linnaeus, 1758), Rhinella marinus (Linnaeus, 1758); Bufo brasiliensis Laurenti, 1768; Bufo horridus Daudin, 1803; , Bombinator maculatus Merrem, 1820; Bufo albicans Spix, 1824; Bufo lazarus Spix, 1824; Bufo horribilis Wiegmann, 1833; Bufo pithecodactylus Werner, 1899; Bufo angustipes Taylor Smith, 1945; Bufo pythecodactylus Werner, 1961
Origin: Introduced, Intercepted.
Galapagos Distribution: San Cristóbal.
References: Jiménez-Uzcátegui, G. et al. (2007).
33. *Saguinus oedipus* Linnaeus, 1758
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Intercepted.
Galapagos Distribution: San Cristóbal.
References: Jiménez-Uzcátegui, G. et al. (2007).
34. *Scinax quinefasciatus* Fowler, 1913
Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

Galapagos Distribution: Isabela, San Cristóbal, Santa Cruz.

References: Jiménez-Uzcátegui, G. et al. (2007), Patry, M. et al. (2002), Snell, H.L. et al. (1999), Tapia, W. et al. (2000), Vintimilla, J.E. et al. (2005).

35. *Sus scrofa* Linnaeus, 1758

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Escaped.

Galapagos Distribution: Floreana, Isabela, San Cristóbal, Santa Cruz.

References: Cruz, F. et al. (2005), Hoeck, H.N. et al. (1984), Jácome, M. et al. (1989), Jiménez-Uzcátegui, G. et al. (2007), Wolf, T. et al. (1892).

36. *Trachemys scripta* Schoepff, 1792

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Intercepted.

IUCN Red List: Least Concern.

Galapagos Distribution: San Cristóbal, Santa Cruz.

References: Jiménez-Uzcátegui, G. et al. (2007).

Rejected Taxa:

1. *Phyllodactylus tuberculosus* Wiegmann, 1835

Two specimens collected from San Cristobal in 1888 by J.R. Slevin (see Van Denburgh, 1912), and it had a mistake in the identification (see Taylor 1942). Also, J. Olmedo collected on the same Island a juvenile specimen (?) in 1992, but it was a bad identification (Olmedo's thesis did't present this record).

References:

1. Appeltans, W., Bouchet, P., Boxshall, G.A., Fauchald, K., Gordon, D.P., Hoeksema, B.W., Poore, G.C.B., van Soest, R.W.M., Stöhr, S., Walter, T.C., Costello, M.J. (eds.) (2010) *World Register of Marine Species (WoRMS)*. Available online at <http://www.marinespecies.org>.

2. Barnett, B.D. (1986) *Eradication and control of feral and free ranging dogs in the Galápagos Islands*. Proc. Vertebr. Pest Conf. 12: 358-368.

3. Black, J. (1973) *Galápagos. Archipiélago del Ecuador*. Imp. Europa (CDF WWF), Quito, 1-138.

4. Campbell, K., Donlan, J., Cruz, F. Carrión, V. (2004) *Eradication of Feral Goats Capra hircus from Pinta Island, Galápagos, Ecuador*. Oryx 38(3): 328-333.

5. Carrillo, E., Aldás, S., Altamirano, M.A., Ayala-Varela, F., Cisneros-Heredia, D.F., Endara, A., Márquez, C., Morales, M., Nogales-Sornosa, F., Salvador, P., Torres, M.L., Valencia, J., Villamarín-Jurado, F., Yáñez (2005) *Lista Roja de los Reptiles del Ecuador*. Fundación Novum Milenium, UICN-Sur, UICN-Comité Ecuatoriano, Ministerio de Educación y Cultura, Serie Proyecto PEEPE. Quito, 46 pp.

6. Carrillo, E., Aldás, S., Altamirano, M.A., Ayala-Varela, F., Cisneros-Heredia, D.F., Endara, A., Márquez, C., Morales, M., Nogales-Sornosa, F., Salvador, P., Torres, M.L., Valencia, J., Villamarín-Jurado, F., Yáñez (2005) *Lista Roja de los Reptiles del Ecuador*. Fundación Novum Milenium, UICN-Sur, UICN-Comité Ecuatoriano, Ministerio de Educación y Cultura, Serie Proyecto PEEPE. Quito, 46 pp.

7. Carrión, V., Donlan, J., Campbell, K., Lavoie, C. Cruz, F. (2006) *Feral Donkey (Equus asinus) Eradications in the Galápagos*. Biod. and Cons. DOI 10.1007/s10531-005-5825-7.

8. Coulter, J. (1845) *Adventures in the Pacific; with observations on the natural productions, manners and customs of the natives of the various islands; together with remarks on missionaries, British and other residents, etc.* William Curry, Jun. and Co., Dublin, 290 pp.

9. Cruz, F., Donlan, C.J., Campbell, K., Lavoie, C. V. Carrión (2005) *Conservation action in the Galapagos: feral pig Sus scrofa eradication from Santiago Island* Biol. Conserv. 121: 473-478.
10. Fessl, B., Tebbich, S. (2002) *Philornis downsi - a recently discovered parasite on the Galápagos archipelago - a threat to Darwin's finches?* Ibis 144: 445-451.
11. Garman, S. (1892) *The reptiles of the Galapagos Islands. From the collections of Dr. George Baur.* Bulletin Essex Inst. 24: 73-87.
12. Gingrich, E.N., Scorza, A.V., Clifford, E.L., Olea-Popelka, F.J., Lappin, M.R. (2010) *Intestinal parasites of dogs on the Galapagos Islands.* Veterinary Parasitology, 169(3-4): 404-407.
13. Gottdenker, N.L., Walsh, T., Vargas, H., Merkel, J., Jiménez-U., J., Miller, R.E., Dailey, M. Parker, P. (2005) *Assessing the risks of introduced chickens and their pathogens to native birds in the Galápagos Archipelago.* Biological Conservation 126: 429-439.
14. Hamann, O. (1975) *Vegetational changes in the Galapagos Islands during the period 1966-1973.* Biol. Conserv. 7(1): 37-59.
15. Harmon, W.M., Clark, W.A., Hawbecker, A.C. Stafford, M. (1987) *Trichomonas gallinae in columbiform birds from the Galápagos Islands.* Journal of Wildlife Diseases 23(3): 492-494.
16. Harris, D.B. (2006) *Introduced black rats and endemic Galapagos rice rats: competition, coexistence and conservation.* A thesis submitted for the degree of Doctor of Philosophy. Linacre College, Oxford.
17. Harris, M.P. (1973) *The Galápagos avifauna.* Condor 75(3): 265-278.
18. Heyerdahl, T., Skolsvod, A. (1956) *Archeological evidence of pre-Spanish visit to the Galápagos Island.* American Antq. 22: 1-71.
19. Hoeck, H.N. (1984) *Introduced fauna. In: Perry, R. (ed.): Key environments: Galápagos.* Pergamon Press, Oxford, p. 233-246.
20. Jiménez-Uzcátegui, G., Carrión, V., Zabala, J., Buitrón, P. Milstead, B. (2007) *Status of introduced vertebrates in Galapagos.* Galapagos Report 2006-2007. Charles Darwin Foundation, Puerto Ayora, p. 136-141.
21. Jiménez-Uzcátegui, G., Milstead, B., Márquez, C., Zabala, J., Buitrón, P., Llerena, A., et al. (2007) *Galapagos vertebrates: endangered status and conservation actions.* Galapagos Report 2006-2007. Charles Darwin Foundation, Puerto Ayora, p. 104-110.
22. Jiménez-Uzcátegui, G., Betancourt, F. (2008) *Avifauna vs automotores.* Informe Galápagos 2007-2008. FCD, PNG INGALA. Puerto Ayora, Ecuador. p. 111-114.
23. Jácome, M. (1989) *Mamíferos introducidos en Galápagos.* Informe técnico para la Fundación Charles Darwin y Servicio Parque Nacional. Galápagos. Puerto Ayora, Ecuador. 33 pp.
24. Levy, J.K., Crawford, C., Lappin, M.R., Dubovi, E.J., Levy, M.G., Alleman, R., Tucker, S.J. Clifford, E.L. (2008) *Infectious diseases of dogs and cats on Isabela island, Galapagos.* Journal of Veterinary Internal Medicine 22: 60-65.
25. Lévêque, R., Bowman, R.I. Billeb, S.L.. (1966) *Migrants in the Galapagos area.* Condor 68(1): 81-101.
26. Meyer De Schauensee, R.M. (1966) *The Species of Birds of South America and their Distribution.* Academy of Natural Sciences of Philadelphia. Pennsylvania.
27. Naveda, B. (1949) *Galápagos a la vista.* Ediciones Últimas Noticias, Quito, Ecuador.
28. Olmedo, L.J., Cayot, L.J. (1994) *Introduced geckos in the towns of Santa Cruz, San Cristobal and Isabela.* Noticias de Galapagos 53: 7-12.
29. Olmedo, L.J. (1994) *Salamanquesas endémicas e introducidas en las islas pobladas de Galápagos.* Tesis de grado previa a la obtención del título de Biología. Facultad de Filosofía Letras y Ciencias de la Educación. Universidad Central del Ecuador. Quito, Ecuador, 110 pp.
30. Padilla, L.R., Santiago-Alarcon, D., Merkel, J., Miller, R.E. Parker, P.G. (2004) *Survey for Haemoproteus spp., Trichomonas gallinae, Chlamydophila psittaci, and Salmonella spp. in Galapagos Islands Columbiformes.* Journal of Zoo and Wildlife Medicine 35(1): 60-64.

31. Parker, P.G., Whiteman, N.K., Miller, R.E. (2006) *Conservation medicine on the Galápagos Islands: partnerships among behavioral, population, and veterinarian scientists*. The Auk 123(3): 625-638.
32. Patry, M. (2002) *Estatus de vertebrados introducidos en las islas mayores de Galápagos y estrategias de manejo*. En: Fundación Natura: Informe Galápagos 2001-2002. Quito, Ecuador.
33. Pérez, S., Nowak, J.B. (1987) *¿Por primera vez anida la Garza Bueyera en Galápagos?* Carta Informativa CDRS 20: 4.
34. Salvin, O. (1876) *On the avifauna of the Galápagos Archipelago*. Transactions of the Zoological Society of London 9: 447-510.
35. Slevin, J.R. (1935) *An account of the reptiles inhabiting the Galápagos Islands*. Bulletin New York Zoological Society 38: 1-24.
36. Snell, H.L., Márquez, C. (1999) *A new class of vertebrates established in Galápagos*. Distributed by e-mail and through the internet.
37. Soos, C., Padilla, L., Iglesias, A., Gottdenker, N., Cruz Bedon, M., Rios, A. Parker, P.G. (2008) *Comparison of pathogens in broiler and backyard chickens on the Galapagos Islands: implications for transmission to wildlife*. The Auk 125(2): 445-455.
38. Swash, A., Still, R. (2000) *Birds, mammals, and reptiles of the Galapagos Islands, an identification guide*. Yale University Press, New Haven, Connecticut, USA, 168 pp.
39. Tapia, W., Patry, M., Snell, H. Carrión, V. (2000) *Estado actual de los vertebrados introducidos a las islas Galápagos*. Fundación Natura: Informe Galápagos 1999-2000. Quito, Ecuador.
40. Thiel, T., Whiteman, N.K., Tirapé, A., Baquero, M. I., Cedeño, V., Walsh, T., Jiménez-Uzcátegui, G. Parker, P.G. (2005) *Characterization of canary pox-like viruses infecting endemic birds in the Galapagos Islands*. Journal of Wildlife Diseases 41(2): 342-353.
41. Toral, V., Poulson, T. (2006) *La tilapia Oreochromis niloticus en la Laguna de El Junco, San Cristóbal*. Informe técnico para la Fundación Charles Darwin y Servicio Parque Nacional Galápagos. Puerto Ayora, Ecuador. 5 pp.
42. Van Denburgh, J. (1912) *The geckos of the Galapagos Archipelago. Expedition of the California Academy Sciences to the Galapagos Island 1905-1906*. Proceedings of the California Academy Sciences, fourth series 1: 405-430.
43. Vanzolini, P.E. (1965) *On the gonatodes of the Galapagos Islands (Sauria, Gekkonidae)*. Papéis Avulsos de Zoologia 17(2): 17-19.
44. Vargas, H. (1996) *What is happening with the avifauna of San Cristóbal?* Noticias Galápagos 57: 23-24.
45. Vintimilla, J.E. (2005) *Estudios para el control y disminución de ranas Scinax quinquefasciatus, con impactos mínimos en los Humedales de Isabela Sur (Islas Galapagos)*. Tesis previa la obtención del título de Ingeniero Agrónomo. Universidad de Cuenca. Cuenca, Ecuador, 71pp.
46. Wiedenfeld, D.A. (2006) *Aves, the Galapagos Islands, Ecuador*. Check List 2(2): 1-27.
47. Wolf, T. (1892) *Geografía y Geología del Ecuador*. Publicada Orden Supremo Gobierno República. Leipzig, Quito, (Part 5, El Archipiélago de Galápagos) p. 469-493.
48. Wright, J.W. (1983) *The distribution and status of Gonatodes collaris in the Galápagos Archipelago*. Herpetological Review 14(1): 32.