Supporting Information Appendix S1

Systematic Taxonomy

Lipotyphla Haeckel, 1866 (amended Stanhope *et al*., 1998)

Solenodontidae Dobson, 1882

***Solenodon* Brandt, 1833**

***Solenodon paradoxus* Brandt, 1833**

***Solenodon paradoxus haitiensis* subsp. nov.**

Holotype: OUM 23104, a skull and almost complete postcranial skeleton, collected by the lead author in April 2007 and found freshly dead by a local informant ~8 months earlier (Fig. S1); specimen used in both genetic and morphometric analysis in this study.

Etymology: After Haiti, where this subspecies constitutes an endemic taxon.

Common names: We suggest that this subspecies should be referred to in English as the Macaya solenodon, after the Macaya Biosphere Reserve in the Massif de la Hotte that covers part of its geographic range; the name "Haitian solenodon" should be avoided, as this has been used in the past to refer to *Solenodon paradoxus* individuals across Hispaniola. Turvey *et al*. (2008) reported that solenodons in the Duchity region of the Massif de la Hotte were referred to by local people either as a distinct second variety of hutia (*zagouti*) or by a range of Creole names all referring to the animal's elongated snout (*nen long*, *bouche long*, *zagouti bouche long*, *cochon dinjue nen long*).

Type locality: 18°24'54" N, 73°54'31" W, 829 metres asl, edge of patch of second-growth moist broadleaf forest, 4km southwest of Plaine Martin, Grande'Anse Department, Haiti.

Distribution: This subspecies has a highly restricted current distribution, surviving only as a relict population in the Massif de la Hotte. Distribution data from fieldwork conducted in the region between the 1970s and early 1990s was qualitatively summarized by Woods & Ottenwalder (1992) and Sergile & Woods (1996), who considered that solenodons only survived on the elevated karstic plateau to the east of Pic Macaya, in an 8–10km radius around the village of Duchity in the proposed eastern buffer zone of Macaya Biosphere Reserve, and were largely restricted to the remote high-elevation (1,200–1,400m asl) areas of Diquillon and Mare Cochon south-west of Plaine Martin. Turvey *et al*. (2008) reported that solenodons occurred as far northeast as La Hatte Foucault village, ~20km from the Diquillon–Mare Cochon region, and at lower elevations (down to ~750m asl) and in more anthropogenically degraded habitat than previously reported. Timyan & Hedges (2011) also reported that possible solenodon "nose pokes" (foraging sign) were occasionally observed by local informants around Deux Mammelles village, ~24km west-north-west of Pic Macaya. Late Quaternary (Late Pleistocene to post-Columbian) solenodon fossil specimens presumably referable to the new subspecies have been collected from other localities across the Massif de la Hotte, including caves near Camp Perrin (Woods & Ottenwalder, 1992; Ottenwalder, 2001).

Diagnosis: Compared to *Solenodon paradoxus paradoxus* (north palaeo-island), the new subspecies differs in having a generally shorter skull with differing breadth, with a statistically significantly shorter total maxillary and mandibular

toothrow length (both I2–M3 and i3–m3) and cheektooth length (both P5–M3 and p5–m3); generally smaller dentition (shorter p1 and p4; narrower m3; shorter and narrower lower canine and p5); shorter occipitonasal, palate and postpalate length; shorter mandible as measured by shorter distance from both base of i2 and posterior margin of m3 to the angular, coronoid and condyle, shorter distance from posterior margin of symphysis to digastric notch, and shorter distance between coronoid–angular, condyle–angular, and end of digastric notch–coronoid; greater width across the palate opposite I1, I3 and M1 and across the minor palatine foramina; narrower width across the anterior snout, the infraorbital foramina, the postorbital constriction, the braincase, the zygomatic processes of the squamosal, the entoglenoid process, and across the palate opposite P5; and narrower foramen magnum.

Compared to *Solenodon paradoxus woodi* (southeastern palaeo-island), the new subspecies differs in having a generally broader and longer skull, with statistically significantly greater occipitonasal and palatal length; greater width across the palate opposite I1, I3, P5 and M2 and across the minor palatine foramina and the foramen ovale; narrower width across the zygomatic processes of the squamosal; generally larger dentition (longer I2, P4, i3, p1 and m2; wider I3, upper canine, M2 and p4; longer and wider P5, M1, i2, p5, m1 and m3) and greater total maxillary and mandibular toothrow length (both I2–M3 and i3–m3) and cheektooth length (both P5–M3 and p5–m3); longer mandible as measured by distance from both base of i2 to posterior margin of angular; and smaller mandibular condyle as measured by width of condyle, coronoid–condyle length, and distance from posterior margin of m3 to posterior margin of both condyle and coronoid process.

The new subspecies has similar limb bone dimensions to *S. paradoxus woodi* rather than *S. paradoxus paradoxus* (see Ottenwalder, 2001).

Description: Terminology follows Wible (2008). Skull long, low and narrow, with anterior skull bones elongated into snout-like rostrum. Nasals with concave anterior margins and nearly parallel lateral margins. Premaxilla with three incisors, a transversely oriented large I1 and longitudinally oriented smaller I2 and very small I3; diastema between I1 and I2. Maxilla with canine, three premolars (P1, P4, P5) and three molars (M1-M3); and with short anterior zygomatic process, triangular in ventral view, that projects posterodorsally opposite M3 paracone. Upper molars zalambdodont, with V-shaped occlusal surface, a large central cusp, and two buccally extending ridges. Hard palate expanding in width posteriorly, comprised of premaxilla, maxilla, and small palatine; paired incisive foramina present immediately posterior to I1 and opposite diastema, almost completely enclosed by premaxilla; palatine with short medial posterior nasal spine and supporting lateral minor palatine foramina. Anterior orbital rim comprised mainly of maxilla, with small lacrimal situated high in rim; with large anterior-facing infraorbital foramen and smaller posterior-facing lacrimal foramen. Optic foramina tiny. Distinct orbital rim absent; little postorbital constriction. Jugal absent. Braincase low and flattened, roof and walls comprised of fused frontal, squamosal, parietal, and small interparietal; sutures absent in adult specimens; with low sagittal crest and low orbitotemporal crest. Squamosal with triangular posterior zygomatic process ending in short, anteriorly directed point; situated in front of reduced mastoid exposure of petrosal. Glenoid fossa with well-defined entoglenoid process on squamosal. Basicranium with well-defined alisphenoid canal, foramen ovale, and

piriform fenestra. Dorsal and lateral margins of supraoccipital developed into rounded nuchal crest. Foramen magnum large, laterally elliptical, bounded laterally by obliquely oriented occipital condyles supported on exoccipital and basioccipital.

Mandibular body with ten teeth (i1-3; canine; p1, p4 and p5; m1-3); shallow and fairly uniform in depth, with several mental foramina present on external surface; i2 greatly enlarged and caniniform, with deep groove along entire length of tooth on internal surface; m3 separated from coronoid process by retromolar space. Large mandibular symphysis extends posteriorly to beneath anterior root of p5, and extends medially above level of mandibular body to produce narrow elevated shelf below p4-p5. Raised mylohyoid crest runs posteriorly from beneath m3 onto mandibular ramus, defined posteriorly by large mandibular foramen. Mandibular ramus with vertically oriented coronoid process, with thickened coronoid crest on anterior and dorsal borders, and with base of process at right angle to occlusal plane; coronoid process separated by wide posterior notch from posterodorsally oriented condyle; condyle closely adjacent to broadly rounded angular process with low raised crest on outer contour. Separate process for digastric muscle attachment present as distinct raised notch below coronoid process and considerably anteroventral to angular process.

Details of 82 craniodental measures for the new subspecies given in Table S4, based on analysis of two specimens in OUM and 27 specimens in UF.

Specific soft-tissue differences between subspecies of *Solenodon paradoxus* unknown, and require future study.

Discussion: In his previous morphometric analysis of allopatric Hispaniolan solenodon populations, Ottenwalder (2001) noted that “the possibility also

exists that the Haitian [i.e. Massif de la Hotte] sample might represent a phenetically identifiable population from those of North Hispaniola and south Dominican Republic, and therefore a separately evolving lineage. However, considering that available data are inconclusive, and that supporting genetic information is lacking, I have chosen not to appraise the amount of differentiation, nor to recognize the Haitian sample as a separate population for the time being". Other authors have also frequently considered that the Massif de la Hotte solenodon population might represent a distinct unnamed subspecies or even species (Woods & Ottenwalder, 1992; Sergile & Woods, 1996; Turvey *et al*., 2008). Our study demonstrates that all three allopatric Hispaniolan solenodon populations are genetically distinct, and can also be distinguished phenetically from each other on the basis of our more extensive morphometric analysis. As the northern and southeastern populations have already been described as separate named subspecies (Ottenwalder 2001), it is therefore necessary to provide a formal description for the third, previously unnamed subspecies from southwestern Hispaniola.

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