NOTES ON THE PHALANGERID MARSUPIAL GENUS
SPILOCUSCUS, WITH DESCRIPTION OF A NEW SPECIES
FROM PAPUA

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A new small-bodied species of spotted cuscus is described from Biak and Supiori, neighboring oceanic islands in Cenderawasih Bay, northwest New Guinea. The nonvolant mammal fauna of Biak-Supiori is almost entirely endemic. The geographic origin of another insular species of the genus (Spilocuscus kraemeri) is also discussed: S. kraemeri is a distinctive species known only from the Admiralty Islands but, due to its putative absence from the fossil record of those islands, it is thought to have been introduced there from an unknown source population in prehistoric times. Based on new evidence, we suggest that kraemeri is either native to the Admiralty Islands, or originally differentiated on the large island of New Britain in the Bismarck Archipelago.

Key words: Admiralty Islands, Biak-Supiori, Bismarck Archipelago, Indonesia, Papua New Guinea, Phalangeridae, marsupials, Spilocuscus, spotted cuscuses, taxonomy

The spotted cuscuses (the phalangerid genus Spilocuscus Gray, 1862) comprise a group of colorful, medium sized, arboreal frugivore-folivores endemic to tropical forests in the Australo-Papuan region. The distribution of the genus includes the lowlands of New Guinea, tropical northeastern Australia, and many Melanesian islands, including several New Guinean land bridge islands (Yapen, Misool, Salawati, and the Aru Islands) and several oceanic islands near New Guinea, including the Bismarck Archipelago, Waigeo and Batanta, Biak-Supiori, Numfoor, and the Kai Islands (Flannery 1994). The range of 1 species of the genus (S. maculatus chrysorrhos) also extends to the island of Salayer south of Sulawesi (as a result of human-sponsored introduction—George 1987), and to the Central Moluccas (Seram, Ambon, Buru, and the Banda Islands) where it might be either native or introduced (Flannery 1995b; Helgen 2003).

Drawing on their studies of features of the cranium, dentition, and integument, Flannery et al. (1987) and George (1987) argued that species of Spilocuscus should be separated generically from those of Phalanger (sensu stricto, i.e., with content as defined by Groves [in press]), with which they were previously considered congeneric (Feiler 1978; Laurie and Hill 1954; Thomas 1888; Tate 1945). The monophyly of Spilocuscus and its generic-level separation from other phalangerids has since been supported by studies using DNA hybridization techniques (Kirsch and Wolman 2001; Lapointe and Kirsch 2001) and mtDNA sequence data (Hamilton and Springer 1999; Osborne and Christidis 2002). Among phalangerid genera, Spilocuscus is characterized by a strikingly unique combination of traits, including sexual dichromatism in pelage coloration, ranging from subtle differences in S. papuensis of Waigeo to markedly divergent patterns in S. rufoniger of northern New Guinea and S. kraemeri of the Admiralty group; pronounced sexual dimorphism, with females larger than males; a reduced and internally furred outer ear, rendered relatively inconspicuous in the pelage; an eye with vertically slit pupils; an enlarged frontal sinus (the bulging forehead of Spilocuscus skulls); and presence of a protocone on P3.

Historically, species-level systematics of Spilocuscus have been highly labile (Feiler 1978; Flannery et al. 1987; Flannery and Calaby 1987; George 1987; Gray 1862; Laurie and Hill 1954; Schwarz 1934; Tate 1945). Within the last decade, however, taxonomy within the genus has stabilized. Recent authors recognize a large-bodied species endemic to the lowlands of northern New Guinea (S. rufoniger), a smaller, widespread and variable species ubiquitous in the lowlands of New Guinea and in tropical northeastern Australia (S. maculatus, widely sympatric with S. rufoniger in northern New Guinea), and 2 distinctive insular species, 1 endemic to Waigeo (and probably Batanta) off northwestern New Guinea (S. papuensis) and the other endemic to the Admiralty group of the northwestern Bismarck Archipelago (S. kraemeri—Flannery...
Here we modify this scheme by describing a 3rd distinctive insular species from Biak-Supiori in Cenderawasih (= Geelvink) Bay in northwestern New Guinea (Fig. 1).

**METHODS AND MATERIALS**

Museum specimens discussed here are deposited in the collections of the Australian Museum, Sydney (abbreviated AM); American Museum of Natural History, New York (AMNH); Natural History Museum, London, United Kingdom (BMNH); Museo di Storia Naturale, Genoa, Italy (MSNG); Museum Zoologicum Bogoriense, Cibinong, Indonesia (MZB); Nationaal Museum van Natuurlijke Historie (formerly Rijksmuseum van Natuurlijke Historie), Leiden, Netherlands (RMNH); Western Australian Museum, Perth (WAM); and Museum für Naturkunde, Humboldt University, Berlin (ZMB).

Dental terminology follows Luckett (1993). All measurements are in millimeters. Craniodental variables were measured to the nearest 0.01 mm by the authors with handheld digital calipers.

All handling of animals conformed to guidelines established by the American Society of Mammalogists Animal Care and Use Committee (1998).

**SYSTEMATICS**

Order Diprotodontia Owen, 1866
Family Phalangeridae Thomas, 1888
Genus *Spilocuscus* Gray, 1862

*Spilocuscus wilsoni* new species

**Holotype.** RMNH 12727, juvenile male, skin, skull (Fig. 2), and postcranial skeleton, from Biak, Cenderawasih (= Geelvink) Bay (Papua, Indonesia), collected April 1955 by L.D. Brongersma. This immature specimen is chosen as the holotype because it has more exact collection information than the adult paratype.

**Paratype.** RMNH 64, adult male, skin and skull (Fig. 3), “brought by natives from the Schouten Islands” (=Biak-Supiori, Papua, Indonesia), collected by T. H. Ruys (date of collection unrecorded—registered at RMNH on 17 April 1906). An immature individual living as a family pet on Biak was photographed but not collected by the 2nd author in September 1992 (Fig. 4), and constitutes an additional paratype.

**Diagnosis.** *S. wilsoni* is a very small-bodied species of *Spilocuscus* (condylobasal length about 90 and hindfoot about 55 in the adult paratype) with blue-green eyes (unique in the genus), a pure white coat in the adult male paratype (shared only with *S. m. maculatus*), a reduced inflation of the frontal sinus (relative to all other congeners), and a spicule-like P2 variably retained in the maxilla (as in all congeners except *S. m. maculatus* and *S. kraemeri*).

**Distribution.** *S. wilsoni* is endemic to the neighboring oceanic islands of Biak-Supiori in Cenderawasih Bay (Fig. 1). Interestingly, *S. m. maculatus* (not *S. wilsoni*) occurs on Numfoor (specimens at ZMB), Pulau Num (specimens at MSNG), and Yapen (specimens at BMNH, ZMB), the other major islands of Cenderawasih Bay (Fig. 1).

**Etymology.** This species is named for Don E. Wilson of the Division of Mammals at the United States National Museum of Natural History (Smithsonian Institution), Washington, D.C., friend and mentor of the 1st author. We suggest Blue-eyed spotted cuscus as an appropriate common name.

**Description.** *S. wilsoni* might be the smallest of the spotted cuscuses. No field measurements are available for adult *S. wilsoni*, although the hindfoot of the adult paratype measures about 55 (without claws) on the dry skin, smaller than any
Spilocuscus except S. kraemeri (cf. Flannery 1994). S. wilsoni is similar in size only to S. kraemeri of the Admiralty Islands, from which it differs in pelage coloration (see below), eye color, its relatively less pronounced frontal swelling, and variable possession of P2. S. wilsoni most closely resembles S. maculatus maculatus in adult coat color and general craniidental features (e.g., in having high molar crests, finely crenulate molars, a well-developed buccal kink in the cristid obliqua of the lower molars, contact between the nasal and lacrimal on the anterior cranium, and a well-excavated anterior orbit), but the two differ in size (Table 1), eye color, immature pelage coloration (cf. Fig. 4; Flannery and Calaby 1987), and in possession of P2 (generally absent in S. m. maculatus).

The adult paratype (Fig. 3) is a very old individual, with all molars, upper canines, left I2 and both upper 3rd incisors excessively worn. Right I2 is missing and the underlying portion of the premaxilla is completely worn through, and right i1 is fractured at about one-third to one-half of its height to apex. There is no sign of the upper 1st incisors. P2 is absent, although this absence possibly results from heavy wear, as all teeth (and often the underlying bone of the maxillae and premaxillae) are heavily worn (for example, only 1 mandibular unicuspid remains on each side of the jaw; Fig. 3). The occiput appears to have been sawn off dorsally at the posterior base of the sagittal crest, abbreviating the basicranium at the posterior edge of the basioccipital just anterior to the foramen magnum. Despite the very old age of the paratype, and the tendency for the cranium of phalangerids to grow throughout life (Menzies and Pernetta 1986), the skull is small compared to all S. maculatus (e.g., Table 1). The shape of the skull agrees closely with S. m. maculatus, although the fronto-parietal inflation (often grotesquely expanded in adult males of other Spilocuscus taxa that approach this specimen in age) is remarkably unpronounced. The sagittal crest is well developed and the canines (although worn) are relatively large. The lacrimal and nasal contact one another to separate the frontal and maxilla (though the resulting border is precariously narrow). The toothrow is large relative to other elements of the skull in S. wilsoni (e.g., Table 1; Fig. 5).

The young male holotype is very small compared to specimens of S. m. maculatus of similar age. Selected measurements of the holotype followed by the range of variation in 3 specimens of S. m. maculatus of roughly equivalent dental development (AM M14597, AM M21857, AM M21858) include the following: condylobasal length 62.2 mm (versus 73.0–83.4 mm), zygomatic width 39.0 (versus 46.0–49.9), interorbital constriction 10.1 (versus 12.7–13.5), and nasal length 21.3 (versus 25.4–31.1). Nearly all cranial sutures (including the basioccipital-basisphenoid suture) are well-evident in the holotype. In all quadrants of the jaw the 1st and 2nd molars are fully erupted, the 3rd molars are unerupted.

**Fig. 3.**—Cranium (lateral, dorsal, and ventral views) and mandible (lateral and dorsal views) of specimen RMNH 64, paratype of Spilocuscus wilsoni, adult male from Biak-Supiori (Papua, Indonesia).
and there is no sign of the 4th molars. The position of the left I1 is occupied by 2 separate incisors each about half the size of the right I1 (presumably a congenital abnormality). P2 is present, and the nasal shares a fairly extensive border with the lacrimal.

*S. wilsoni* is the only species of *Spilocuscus* with blue-green eyes (Fig. 4). All other congeners have a brown or hazel iris (Flannery 1994, 1995a, 1995b; Gray 1862), although Jentink (1885) reported a carmine-red iris in *S. papuensis* (1 specimen of *S. papuensis* that we examined [Farid, unpublished photograph] had a light reddish-brown iris). *Phalanger ornatus matabiru*, a recently described phalanger from the islands of Ternate and Tidore in the North Moluccas, also has blue eyes (Flannery and Boeadi 1995).

The adult male coat is pure white dorsally and ventrally (at least in 1 individual—the adult paratype), as in some individuals of *S. m. maculatus* of northern New Guinea (Flannery 1994); the adult female coat is unknown. The distinctive juvenile coat is creamy buff with brown and gray-

**Fig. 4.**—Immature *Spilocuscus wilsoni* on Biak, September 1992. Photograph by T. F. Flannery.
brown mottling on the back and limbs, suffused everywhere with silvery-buff hairs. The face and upper neck are light brown (with a slightly lighter crown), the cheeks and venter are pure creamy buff without mottling, the tail is lighter colored than the back with less pronounced mottling, and a white flash is present behind the ear. The nose is pink and the dorsal surfaces of the manus are a darker shade of brown than the mottling on the limbs. Both the immature holotype and the immature individual photographed on Biak (Fig. 4) agree in this color pattern, which is potentially diagnostic for *S. wilsoni* (cf. Flannery 1994; Flannery and Calaby 1987).

**DISCUSSION**

*Comments on Spilocuscus wilsoni.*—Jentink (1907) pointed out the small size of the specimen here designated as the paratype of *S. wilsoni*, and was apparently the only author to discuss *Spilocuscus* from the Schouten Islands before Flannery (1995b) noted that a spotted cuscus kept as a family pet on Biak “may represent a distinct taxon” (Fig. 4), Tate (1945) and Laurie and Hill (1954) previously included Biak in the range of *S. maculatus*, presumably based on Jentink’s (1907) comments.

Given its pelage coloration, general craniodental conformation, and geographic range, there can be little doubt that *S. wilsoni* is most closely related to *S. maculatus* of northern New Guinea (and other Cenderawasih Bay islands). However, the 2 differ markedly in size, and certain traits observed in specimens of *S. wilsoni* (such as a blue-green iris and a variably present P2) do not apparently occur in *S. maculatus* (as reviewed by Flannery and Calaby 1987). Both other *Spilocuscus* taxa described from Melanesian islands (*S. papuensis* from Waigeo and *S. kraemer* from the Admiralty group) are currently accorded full species status (Flannery 1995b; Groves 2004); because of its unique combination of morphological traits, we suggest that species status is most appropriate for *S. wilsoni* as well. However, the 4 subspecies of *S. maculatus* from mainland New Guinea and Australia (*S. m. maculatus*, *S. m. chrysorrhos*, *S. m. goldiei*, and *S. m. nudicaudatus*—Flannery 1994) are nearly as distinctive as each of these insular taxa, suggesting that all 7 *maculatus*-like taxa should probably possess equal taxonomic rank. All of these taxa are allopatric or parapatric and characterized by diagnostic combinations of external and craniodental traits (see Feiler 1978; Flannery 1994; Flannery and Calaby 1987), but there is evidence that interbreeding is possible between some forms (Singadan 1996). This suggests that each of these taxa may be best recognized as allospecies (sensu Mayr and Diamond 2001) of a superspecies *S. [maculatus]*. Nevertheless, pending a formal taxonomic revision of this complex (and elucidation and study of contact zones between the various taxa on mainland New Guinea), we refrain from making any formal changes to the current taxonomic boundaries of *S. maculatus* (i.e., as defined by Flannery 1994; Groves, in press).

Biak is more densely populated than any other offshore West Papuan island (Wikramanayake et al. 2002) and extensive logging has apparently destroyed considerable forest cover on the island in recent decades (Petocz 1989; Stattersfield et al. 1998), although the mountainous forests of Supiori are less disturbed. The 2nd author did not encounter *S. wilsoni* in the wild during 2 weeks of intensive mammal survey work on Supiori in 1992, nor is it present among important series of nonvolant mammals collected by P. Temple and N. Dixon.
Table 1.—Selected craniodental and mandibular measurements for adult males of Spilocuscus m. maculatus and S. wilsoni from northwest New Guinea. (Immature male specimen of S. wilsoni included for molar measurements.)

<table>
<thead>
<tr>
<th>Measurement</th>
<th>S. m. maculatus</th>
<th>S. wilsoni</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condylar length</td>
<td>Mean (SD)</td>
<td>about 90</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>97.6–108.8</td>
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<tr>
<td>Zygomatic width</td>
<td>Mean (SD)</td>
<td>65.9</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>68.0–76.5</td>
</tr>
<tr>
<td>Length of P4 to M4</td>
<td>Mean (SD)</td>
<td>31.3</td>
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<tr>
<td></td>
<td>n</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>29.5–34.4</td>
</tr>
<tr>
<td>Nasal length</td>
<td>Mean (SD)</td>
<td>33.4</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>37.6–46.4</td>
</tr>
<tr>
<td>Width of frontal swelling</td>
<td>Mean (SD)</td>
<td>18.4</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>21.7–30.7</td>
</tr>
<tr>
<td>Length of M1</td>
<td>Mean (SD)</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>6.7–7.8</td>
</tr>
<tr>
<td>Width of M1</td>
<td>Mean (SD)</td>
<td>6.3</td>
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<tr>
<td></td>
<td>n</td>
<td>10</td>
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<tr>
<td></td>
<td>Range</td>
<td>5.6–7.0</td>
</tr>
<tr>
<td>Length of incisive foramina</td>
<td>Mean (SD)</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>6.9–8.8</td>
</tr>
<tr>
<td>Coronoid height of mandible</td>
<td>Mean (SD)</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>38.2–44.6</td>
</tr>
</tbody>
</table>

During survey work on Biak in 1962 (specimens at AM and AMNH) or among collections amassed by the NAMRU-2 expeditions to Biak and Owi in 1976 (specimens at AMNH, MZB, and WAM—Bergmans and Sarbini 1985). Its apparent rarity is notable, as certain congeners (S. maculatus and S. kraemeri) are relatively common throughout their range, even in disturbed habitats or areas of relatively high hunting pressure (Flannery 1994, 1995b). However, the largest species of the genus, Spilocuscus rufoniger, is nearly extinct due to expanding human population pressure and concerted hunting throughout its range (Flannery 1995a).

Given its very restricted range and seeming rarity, we recommend an IUCN ranking of Critically Endangered for this new species. Additional fieldwork is needed to investigate the conservation status and general biology of S. wilsoni and other poorly known endemic vertebrates from Biak-Supiori (see below).

Mammalian endemism in the Biak-Supiori fauna.—Biak and Supiori are oceanic islands, and all native elements in the fauna show signs of having arrived overwater, either by flying (in the case of birds and bats—Mayr and de Schauensee 1939) or via sweepstakes dispersal (in the case of nonvolant mammals). Many species and subspecies of birds are endemic (or near-endemic) to Biak-Supiori (Aplin 1998; Beehler et al. 1986:24; Mayr and de Schauensee 1939; Stattersfield et al. 1998), as are several species of fruit bats, including Dobsonia emersa (a near endemic species shared only with the adjacent oceanic island of Numfoor—Flannery 1995b) and an undescribed, endemic species of Pteropus allied to P. pohlei.

The nonvolant mammal fauna of Biak-Supiori is almost entirely unique taxonomically. Four marsupial species occur on these islands (the bandicoot Echymipera kalbu, the glider Petaurus breviceps, and the cuscuses Phalanger orientalis and Spilocuscus wilsoni); of these, 1 is an endemic species (Spilocuscus wilsoni) and 2 are represented by distinctive endemic subspecies (E. kalbu philipi—Troughton 1945; P. breviceps biacensis—Umer 1940). The remaining species, Phalanger orientalis, is not taxonomically distinctive and might have arrived relatively recently to the island as a human-sponsored introduction (Flannery 1994, 1995b). Several marsupial lineages that are common and widespread on mainland New Guinea (such as macropodids, dasyurids, and pseudocheirids) are poor overwater dispersers (Flannery 1995b) and are absent from the Biak-Supiori fauna.

Five native murid rodents occur on Biak-Supiori (including the adjacent small island of Owi): Uromys boeadii and Uromys emmae (each an endemic species known by a single museum specimen—Groves and Flannery 1994); Rattus jobiensis (a near-endemic species shared only with the adjacent land-bridge island of Yapen); the widespread Australo-Papuan species Hydromys chrysogaster (represented by specimens at AM and AMNH); and an undescribed Paramelomys allied to P. platypus (Flannery 1995b; Menzies 1996b). The introduced commensal rats Rattus exulans and R. rattus are also present on Biak-Supiori, and Owi (Taylor et al. 1982—specimens at AM, AMNH, RMNH, WAM).

In addition to many endemic birds and mammals, Biak-Supiori supports at least 1 endemic frog, Oreophrynopsis capitata (see Günther 2003). Given this remarkable range-restricted vertebrate endemism, the forests of Biak-Supiori must necessarily be considered 1 of the most important conservation priorities in Papua.

On the geographic origin of Spilocuscus kraemeri.—Two species of Spilocuscus occur in the Bismarck Archipelago of eastern Papua New Guinea: S. maculatus maculatus, which occurs on the islands of Mussau (in the St. Matthias group) and New Ireland; and S. kraemeri of the Admiralty group (see Flannery [1995b] for vouched insular records). S. m. maculatus was apparently introduced to Mussau in recent millennia (Flannery 1995b:106) and to New Ireland in 1929 (Flannery and White 1991), and these populations are morphologically indistinguishable from those of mainland New Guinea S. m. maculatus. In contrast, the unique features of S. kraemeri (which include an immediately diagnostic pelage coloration pattern and small body size) have been appreciated since its description by Schwarz (1910), although its taxonomic affinities and geographic origin have never been clear. Tate (1945) allied kraemeri with Spilocuscus rufoniger, Laurie and Hill (1954) and George (1987) treated it as a subspecies of Spilocuscus maculatus, and Flannery and Calaby (1987) considered its status uncertain. After examining extensive museum material of S. kraemeri and collecting new specimens
from Manus, Flannery (1994, 1995b) argued that *S. kraemeri* should be recognized as a distinctive insular species. However, citing preliminary archaeological evidence suggesting that it was absent from the fossil record of Manus prior to “the last one to two thousand years,” Flannery (1995b) posited that *S. kraemeri* must have been transplanted to the Admiralty group from an as yet far undiscovered source population. (Human history in Manus is thought to extend to about 13,000 years before the present (BP), if not earlier [Kirch 2000].)

Recent archaeological research refutes this claim. At Pamwak, a rockshelter site in southern Manus, “C14 dates taken from charcoal, shell, and *Celtis* seeds range back to 12,000 BP (14,000 BP calibrated)” (Williams 1999:242), and *S. kraemeri* is represented erratically in the record at least as far back as about 11,000 years ago. This ancient and spotty occurrence in the subfossil record suggests to us that *S. kraemeri* might be a natural element in the Manus fauna. (Likewise, the bandicoot *Echymipera kalubu* is common at all levels throughout the Pamwak deposit back to about 12,400 years ago; it too could be native to Manus—contra Flannery 1995b:68—and its taxonomic status deserves study.)

Alternately, *S. kraemeri* might have originally evolved on the large Bismarck island of New Britain, where (surprisingly) it might occur today. On zoogeographic grounds Tate (1945) suspected that a species of *Spilocuscus* might inhabit New Britain, but until recently there were no published records of any species of the genus from the island. In a report describing recent mammal survey work on New Britain, Anthony (2001:38) discussed a specimen of “*Spilocuscus maculatus*” purchased in a New Britain market and supposedly hunted on the tiny island of Bali off New Britain; the photograph of the skin of this animal clearly reveals that this is *S. kraemeri*, not *S. maculatus*. According to its label, another museum specimen of *S. kraemeri* (AM M5117, immature male, skin and skull, with meager accompanying collection details, registered 10 April 1931) was also collected on “New Britain.” If *S. kraemeri* actually occurs on New Britain it must be rare there (in contrast to Manus, where it is common), as very few specimens have come to light. This potential difference in abundance between *S. kraemeri* on Manus compared to New Britain might have an ecological explanation: another phalangerid, *Phalanger orientalis breviceps*, is common on New Britain but absent on Manus (Flannery 1995b); competitive interactions with this species could potentially explain the relative rarity of *S. kraemeri* on the former island. Judging from museum series and field observations, species of *Spilocuscus* are generally rarer than *P. orientalis* on islands where both species occur, including the Indonesian islands of Biak-Supiori and Seram, Ambon, Buru, and Batanta, although the reverse might be the case on Waigeo, because European museums hold several large series of *S. papuensis* but very few specimens of *P. orientalis* from that island (see George 1987).

*S. kraemeri* is commonly sold as a living animal in coastal markets on Manus (Flannery 1995b; Menzies 1996a), and both New Britain records could represent translocated individuals or populations that ultimately originated from Manus. Alternately, the Admiralty population could have originally differentiated on New Britain before being introduced to the Admiralties in prehistoric times, or *S. kraemeri* could be a widespread Bismarck endemic that occurs naturally both on New Britain and throughout the Admiralties. Recourse to the subfossil record of New Britain and further study of fossil and archaeological deposits in the Admiralty group will offer a means of discriminating between these scenarios. A New Britain origin for *S. kraemeri* is most attractive in some aspects; for example, like Biak-Supiori and Waigeo-Batanta (the other islands with endemic *Spilocuscus* species), New Britain is a very near oceanic island, assumably much more easily reached by sweepstakes dispersal (e.g., chance rafting in a hollow log) than Manus.

In any case, the origin of *S. kraemeri* is now less enigmatic: it has not been translocated from a “founder population from further west that remains undiscovered” (Flannery 1995b); rather it is probably a true Bismarck endemic, native to the Admiralty group, New Britain, or both. If Admiralty populations of *S. kraemeri* were established naturally by sweepstakes dispersal, then isolated populations from various outlying Admiralty island groups (e.g., the Hermits, Exchequiers, and Wuvulu) deserve additional systematic attention.

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**LITERATURE CITED**


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