this one. The same week that I ventured on land at Cape Hammond, I also went ashore at Punta Mangle, a mangrove haven on the southeast corner of Fernandina. Tied to the island was a dinghy with eleven loose goats on it. I rubbed the head of one and she seemed to appreciate it in her innocence. If given a chance, these goats, innocent of impending doom, would at a moment's notice step onto the molten lava flows in order to reach the vegetation.

After the volcano has silenced itself, perhaps black rats will arrive. Perhaps cats. In these days of change, the sapphire-eyed cormorant and the myopic penguin are in their last haven, for all other areas where they live are irreversibly altered. Any loss of their populations seems to jar at our well-being. In their naïveté, they will vanish forever, without regret. Only we fear the future, unable to control the volcanoes of our own minds, which threaten us and confound our capability to defend a dying world.

Godfrey Merlen, Charles Darwin Research Station, Isla Santa Cruz, Galápagos, Ecuador.

*[Editor's Comment: In Noticias 54 the article "Visitors from the West" by Godfrey Merlen incorrectly remarked on the absence of records of the red-shouldered (also known as the red-spot or blue-lined) wrasse (*Stethojulis bandanensis*) from the eastern Pacific. This wrasse, however, has been previously recorded from Cocos Island in the eastern Pacific (Lopez, M.I. and Bussing, W.A. 1982. Rev. Biol. Trop. 30: 5-26; Bussing, W.A. 1985. Rev. Biol. Trop. 33: 81-98). In addition, recent investigations at Clipperton Atoll reveal an abundant population of this species.* S. bandanensis *is also listed in "Fishes of the Tropical Eastern Pacific" by Gerald R. Allen and D. Ross Robertson (Crawford House Press, Bathurst, Australia 1994) as "widespread in the tropical Pacific Ocean from Australia to southern Japan, and eastward to islands of the eastern Pacific, including Isla del Coco, Clipperton Island and the Galápagos, usually associated with coral reefs". Thus far their occurrence in the tropical eastern Pacific is limited to offshore islands. We thank Godfrey Merlen, Jerry Wellington and Gayle Davis-Merlen for providing this correction.]*

RE-IDENTIFICATION OF THREE DOLPHIN SKULLS IN THE MUSEUM OF THE CHARLES DARWIN RESEARCH STATION

By: Daniel M. Palacios

While working for the Whale Conservation Institute in Galápagos between February 1993 and March 1994, I undertook a study documenting the remains of cetaceans that have been found washed ashore on the islands. Some preliminary results are presented here, including the re-identification of three specimens from the reference collection of the Charles Darwin Research Station.

Of the 22+ cetacean species that have been observed in Galápagos waters (Day 1994), 13 are represented by beached specimens collected since William Beebe's expedition in 1923 (Palacios 1995*a*) (Table 1). The remains of a rough-toothed dolphin (*Steno bredanensis*) (Orr 1965), and a ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*) found on Genovesa in 1970 by Tjitte de Vries (Palacios 1995*b*) provide the only evidence that these two species occur in Galápagos. *S. bredanensis* prefers warmer waters than those normally found around Galápagos and *M. ginkgodens* has never been seen alive anywhere.

At least 29 specimens are housed in 8 scientific collections and 19 more are housed in private collections (Palacios 1995*a*). The museum of the Charles Darwin Research Station alone contains a reference collection of at least 22 specimens representing six species (Table 1).

I examined several of the specimens at the Charles Darwin Research Station and found that three skulls (catalogue numbers V-857, V-858 and V-859) collected by J. Webb on 1 April 1975 from the northwest coast of San Cristóbal and labeled as short-beaked common dolphins (*Delphinus delphis*) did not match those typical for that species. Close examination of the ventral side of the rostrum revealed the absence of the two deep lateral grooves running longitudinally on the left and right palatine processes of the maxillaries (also known as the palatal carination) which distinguish the genus *Delphinus* from all other genera of delphinids (Tomilin 1967; Evans 1994). In addition, I counted only 35-41 teeth (or alveoli when teeth were absent) in the upper and lower jaws of these specimens, as opposed to 45-50 teeth (or alveoli) in the jaws of other *D.*

Table 1. List of cetaceans recorded from remains in Galápagos. Asterix indicates specimens in the reference collection of the museum of the Charles Darwin Research Station (CDRS).

COMMON NAME	SCIENTIFIC NAME
Rough-toothed dolphin	*Steno bredanensis*
Risso's dolphin	*Grampus griseus*
Bottlenose dolphin	*Tursiops truncatus* *
Pantropical spotted dolphin	*Stenella attenuata* *
Striped dolphin	*Stenella coeruleoalba*
Short-beaked common dolphin	*Delphinus delphis* *
False killer whale	*Pseudorca crassidens*
Short-finned pilot whale	*Globicephala macrorhynchus* *
Ginkgo-toothed beaked whale	*Mesoplodon ginkgodens* *
Cuvier's beaked whale	*Ziphius cavirostris* *
Sperm whale	*Physeter macrocephalus*
Dwarf sperm whale	*Kogia simus*
Rorqual sp.	*Balaenoptera* sp.

delphis skulls I examined (for example, specimens V-591 and V-1182). The cranial measurements also show that the skulls are smaller than the skulls of *D. delphis* in Galápagos.

These diagnostic characteristics (Evans 1994; Perrin and Hohn 1994) allowed me to re-identify specimens V-857, V-858 and V-859 as pantropical spotted dolphins (*Stenella attenuata*), not the more abundant short-beaked common dolphins as originally labeled (Fig. 1). William F. Perrin subsequently confirmed the re-identification of these skulls.

ACKNOWLEDGMENTS

This study was possible thanks to the collaboration and patience of many people who kindly allowed me to inspect the specimens under their care or guided me to sources of information. I would like to single out Linda J. Cayot, David Day, Gus Angermeyer, Heidi M. Snell, Tjitte de Vries, Gayle Davis-Merlen, Liz Pillaert and espe-

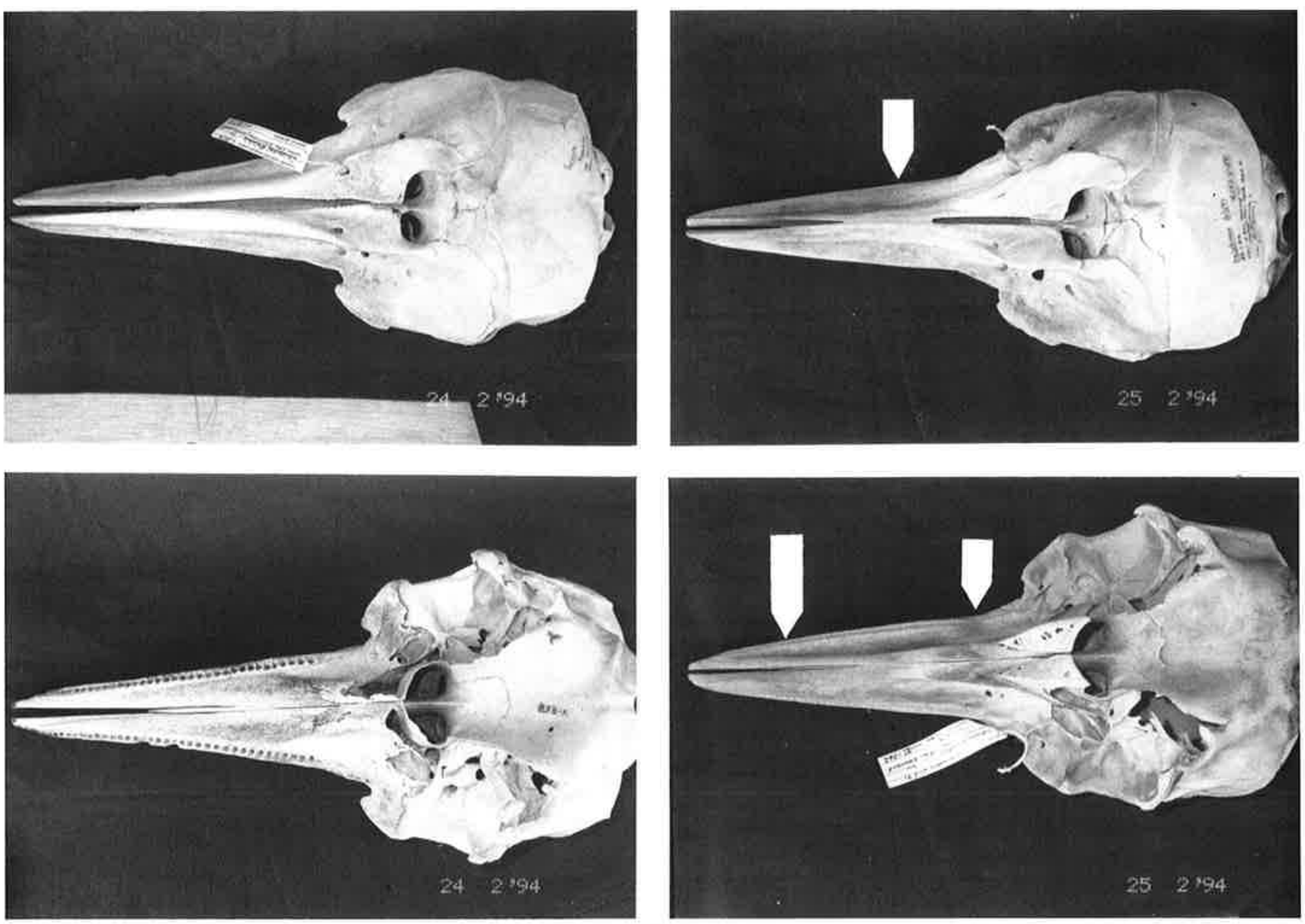

Figure 1. Dorsal and ventral views of skulls of *Stenella attenuata* (Cat. No. V-858) on the left and *Delphinus delphis* (Cat. No. V-591) on the right, from the reference collection of the Charles Darwin Research Station. In the ventral view, note the flat palate of *S. attenuata* (bottom left) and the grooved palate of *D. delphis* (bottom right). Also note the medial fusion of the premaxillaries in the dorsal view (top right), another character used in distinguishing *Delphinus* (Tomilin, 1967).

cially the late Mao Ortuño, who inspired and encouraged me to undertake this study. William F. Perrin confirmed the re-identification of the *S. attenuata* skulls. I also thank the Galápagos National Park Service, the Charles Darwin Research Station and the Ecuadorian Navy for providing necessary permits and logistical support. TAME kindly provided reduced airfare to the islands.

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Daniel M. Palacios. Whale Conservation Institute, 191 Weston Road, Lincoln, MA 01773, USA.

POLLEN DIGESTION IN GALÁPAGOS LAVA LIZARDS

By: K. Thalia East
(née K. Thalia Grant)

INTRODUCTION

Pollen grains contain a rich interior of nutrients, including all the essential amino acids and vitamins for growth and development (Faegri and van der Pijl 1971, Stanley and Linskens 1974). However, the outer coat (exine) is highly resistant to penetration by digestive enzymes (Heslop-Harrison 1971) and the degree to which animals are able to use pollen as a nitrogen source is highly variable. Digestion occurs when digestive enzymes degrade the exine or penetrate the interior via the germination pore (Gilbert 1972, Stanley and Linskens 1974, Simpson and Neff 1983). The proportion of empty to full grains in the faeces of animals is thus generally considered an indicator of the extent of digestion (Brice et al.. 1989).

Pollen digestion has primarily been investigated in bees and other arthropods (e.g. Gilbert 1972, Smith and Mommsen 1984, Peng et al. 1986), but has also been found in some bats (Howell 1974, Law 1992), birds (Churchill and Christiansen 1970, Paton 1981, Wooler et al. 1988, Brice et al. 1989) and marsupials (Turner 1984, Richardson et al. 1986, Goldingay 1990) (see Table 1). The western pygmy possum (*Cercartetus nanus*) and the honey possum (*Tarsipes rostratus*) are able to digest up to 100% of the pollen they consume (Turner 1984, Richardson et al. 1986), whereas the Queensland blossom bat (*Syconycteris australis*) and another nectar-feeding marsupial, the yellow-bellied glider (*Petaurus australis*) digest only about 50% (Goldingay 1990, Law 1992). While ability to digest pollen has been investigated in several bird species, only purple-crowned lorikeets (*Glossopsitta porphyrocephala*), New Holland honeyeaters (*Phylidonyris novaehollandiae*), zebra finches (*Poephila guttata*) and budgerigars (*Melopsittacus undulatus*) have been found to digest pollen and with less than 50% efficiency (Paton 1981, Wooler et al. 1988). In contrast, the sharp billed cactus finch (*Geospiza scandens*) was recently found to digest pollen of *Opuntia echios* on Daphne Island, Galápagos with over 90% efficiency (B.R. Grant 1994, pers. comm.).

The efficiency of pollen digestion has not been investigated in lizards. The benefit of including pollen in the diet would primarily be its rich nitrogen content as well as being a source of lipids and carbohydrates. Nonetheless consumption of pollen among nectar-eating geckos is generally dismissed as accidental and having little or no nutritional importance (Elvers 1978, Thorpe and Crawford 1979, Whitaker 1987, 1987*a*). On the other hand, Evans and Evans (1980) and Gardener (1984) suggest that pollen may be an important component of the diet of *Phelsuma* geckos in the Seychelle Islands since at least four species