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## Comments on Four Pre-1853 Seabirds Reportedly Obtained off Monterey, California

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In 1853, George N. Lawrence reported on three specimens of marine birds that he acquired from the cabinet of N. Pike, Esq. (Lawrence 1853b). The birds, all stated to have been from off Monterey, California, were "*Procellaria capensis*" (*Daption capense*), "*Puffinus* \_\_\_\_\_? *Procellaria hasitata*" (a specimen of *Procellaria cinerea*), and "*Stercorarius catharractes*" (a skua specimen with an involved nomenclatural history). The two petrel records are quite extraordinary and have been regarded as inadequately substantiated (AOU 1983). The skua specimen has been regarded by Devillers (1977) as *Catharacta maccormicki*, a migratory species occurring with regularity off the west coast of North America. Herein, I assess these records and one other Pike specimen individually, and then collectively, with the hope of clarifying their origin.

*Procellaria cinerea* (Gray Petrel) is a circumpolar sub-Antarctic species that disperses north of the Tropic of Capricorn in cold-water currents of western South America. The specimen (AMNH 45967) discussed by Lawrence (1853b) is the only report of this petrel from the Northern Hemisphere. The information on the labels attached to the specimen shows that Lawrence was not certain of the specific identification. The bird was first properly identified as *Procellaria cinerea*, at Lawrence's request, by Elliot Coues in 1864. The feathers of the specimen are old, but not worn, and there is no sign of molt.

Pike's specimen of *Daption capense* (AMNH 45965) is of the nominate race with feathers showing little wear and no sign of molt. Northern Hemisphere records of Cape Petrels are problematic, but not necessarily erroneous. Specimen records from Europe have been considered suspect because they might represent birds transported and later released by sailors (Cramp and Simmons 1977). There is some confusion concerning a record from Maine (Norton 1922), but an account of this specimen provided by Forbush (1929) substantiated the origin of the specimen. There also is a recently published, second-hand sight record for this species from off North Carolina (Lee 1986). Loomis (1918) noted that Pike's specimen, from the coast of California opposite Monterey, represents the most northerly occurrence on record for the eastern side of the Pacific, and he provided a record for 16°N near Acapulco, Mexico. Subsequently, additional sight records of these birds off California have all been considered questionable or invalid (J. Dunn pers. comm.).

The skua specimen (AMNH 46093) was listed as

*Stercorarius catharractes* (Linn) by Lawrence (1853b). The original tag bears that name, as well as *Buphagus skua*. The American Museum label listed the species first as *Megalestris skua*, then *Catharacta chilensis*.

In his evaluation of the taxonomic status of *Catharacta* specimens in the North Pacific, Devillers (1977) made the following statement concerning this specimen: "The remaining California specimen, AMNH No. 46093, is probably foxed. It is difficult to identify, but there is no reason to think it is not a dark *maccormicki* (wing chord 373, bill 53, tarsus 62, W/T  $\geq$  6.02, B/T 0.85). Its origin should be considered doubtful as old specimens were often labeled according to port of entry. Thus at present no specimen record of *C. chilensis* for California exists." On the back of this specimen's tag is written "possibly *maccormicki* fide Devillers" and "tarsus 77 mm *lonnbergi* G. E. Watson 8 June 77." After reexamination of the specimen, I concur with George Watson's unpublished identification (based on tarsus length and plumage characters matching those of other specimens of *lonnbergi* at the AMNH). At my request, Dennis Paulson reexamined several other skua specimens (WSM 43, 49) discussed by Devillers and agreed with Devillers' opinion that they were *maccormicki*.

There is only one other specimen (AMNH 46018) in the catalog of the American Museum credited to Pike. It is the type specimen of *Sterna pikei* (Lawrence 1853a), later identified as *S. macroura* (= *paradisaea*). At my request, Mary LeCroy and Richard Sloss, American Museum of Natural History, examined the specimen and concluded that it was indeed *S. paradisaea* and not *S. vittata*. The tern's locality, as for the three birds mentioned above is given by Lawrence (1853a) as "near the coast of California, in the vicinity of Monterey." The bird is in nonbreeding plumage with no trace of juvenal feathers. The primaries are new except for the outermost ones on each wing, which are so worn and broken as to make the wing unmeasurable. The ninth primary on the left wing is about three-fourths grown. In this plumage and state of molt, it is highly unlikely that this specimen was obtained in the Northern Hemisphere. Murphy (1936) reports an Arctic Tern in molt at latitude 68°32'S in March 1904. Watson (1975) stated that Arctic Terns complete the regrowth of the outer primaries in January and February while on their Antarctic wintering grounds.

On the basis of current knowledge of seabird distributions, the occurrence of *Procellaria cinerea* in the

Northern Hemisphere seems highly unlikely. The occurrence of *C. lonnbergi* as far north as California is highly improbable (there are few records north of the Tropic of Capricorn), whereas that of *Daption capense* cannot be ruled out but needs verification. When one considers that none of these species has suffered a documented decline in the last century and that field effort for understanding the distribution of pelagic seabirds off California has increased greatly over the last few decades, the improbability (collectively and individually) of these records being valid is magnified. The likelihood that Pike obtained three specimens of such unlikely occurrence all off Monterey is remote. *Sterna paradisaea* is the only species in this group of Pike's specimens that is documented to occur off California, but the condition of molt almost assures that it was not collected in the Northern Hemisphere.

The reidentification of the skua as *C. lonnbergi* and the molt sequence of the *Sterna* are important in that they provide strong evidence that as a group these specimens, clearly, were incorrectly labeled as to site of origin. Fortunately, unlike many bird records with questionable origins, the origin of these specimens has a plausible explanation. From the original labels, it is clear that all were obtained by Colonel Pike in the same time period. The original labels, which contain only the species name (for at least three of the specimens) are of the same type of paper (a card stock with a print pattern on the back and a red border) and have numbers (assumed to be collection field numbers of Pike) close in sequence (*D. capense* 639; *P. cinerea* 651; *C. lonnbergi* 652). These could represent a number assigned by Lawrence, but this is unlikely since Lawrence's collection would have attained a much higher numerical sequence by 1853. The three skins I examined seem to be prepared by the same person (I did not examine the *Sterna*) and, given many aspects of the technique used, this certainly is the case for the skua and Cape Petrel.

I suggest that the specimens are from on or near the Macquarie Islands southwest of New Zealand, or Crozet or Kerguelen islands in the southern Indian Ocean. These areas are the only sites where *Procellaria cinerea*, *Daption capense*, and *Catharacta lonnbergi* occur as breeding birds. Adult birds obtained away from nesting areas would likely be molting flight feathers or have worn feathers, and at such seasons most are highly pelagic and collectively would be difficult to obtain. Direct comparisons of Pike's specimens with a Cape Petrel (NCSM 14902) and Brown Skua (NCSM 14891) from nesting colonies shows them to be similar in terms of plumage wear and lack of molt. About 550 pairs of Brown Skuas nest on Macquarie (Jones and Skira 1979) and are present as breeding birds from September to February (Watson 1975). The Cape Petrel of Macquarie is not *D. c. australe* of New Zealand and most of its offshore islands, but the nominate form obtained by Pike. It is present as a breeding

species from October to March (Watson 1975). The Gray Petrel is believed to nest on Macquarie Island and, although this has not been confirmed (Watson 1975), they do occur on the island from March through July (Warham 1969). All three species also nest on Crozet and Kerguelen islands, and probably have a similar nesting phenology there. Thus, all three species would be expected to occur at any of the three sites in the late Austral summer. This also is true of *Sterna paradisaea*. Except for possibly Cape Marigny on Kerguelen Island, no place names on any of these islands are likely to have produced a transcribed error of "Monterey."

Lawrence (1853a) in his dedication of *Sterna pikei* noted that Nicolas Pike, Esq., of Brooklyn, Long Island, had for some years "devoted much time to the study of different branches of our Natural History." Pike was assigned as the U.S. Consul at Port Louis, Mauritius Island, as of November 1872 (Pike 1873) and collected specimens during his travels. Although I could not trace his travels in the Southern Hemisphere prior to 1853, it would be reasonable to assume that he had traveled to the Indian Ocean, at least, prior to being assigned to a post at Mauritius and, thus, would have been in a position to obtain material from the Southern Hemisphere.

Although two of the four species are unlikely to occur in the North Pacific and the third is not fully documented from the North Pacific, neither Lawrence nor Pike knew the identification and, therefore, the significance of three of the specimens at the time they were cataloged. This could easily have led to miscommunication concerning the origin of the birds. Because the original labels from Pike's specimens are still with the birds, it seems that these specimens, like so many from private collections, had no attached data other than the names of the species. In view of the above information I feel that it is best no longer to consider these specimens' locality as merely having been inadequately substantiated, but to consider it as erroneous.

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### Experimentally Induced Infanticide: The Removal of Birds and Its Ramifications

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There currently is great interest in the ethical issues surrounding research on nonhuman animals (hereafter animals), including field studies of behavior and behavioral ecology (American Society of Mammalogists 1987, Oring et al. 1988, Michener 1989, Animal Behavior Society 1991, Bekoff and Jamieson 1991, Cuthill 1991, Bekoff et al. 1992). Thus, a study (Emlen et al. 1989) of experimentally induced infanticide in Wattled Jacanas (*Jacana jacana*) deserves scrutiny, for there are some matters of concern centering on: (i) the review process for publication; (ii) the methods used to remove two adult female jacanas; (iii) the maiming and killing of seven of their infants by replacement females as a direct result of the deliberate removal of the mothers of the young birds (for further discussion of some ethical implications of infanticide studies, see Elwood 1991; for recent review of studies of cognition, pain, and stress in birds, see Elzanowski and Abs 1991, Gentle 1992); and (iv) questions concerning trade-offs between the importance of acquiring different types of knowledge and the types of animal research that are permissible in the pursuit of this knowledge. The AOU guidelines (Oring et al. 1988) also do not specifically outline procedures for studying infanticide, and do not directly address in

detail many of the ethical problems involved when performing manipulations that include the removal of animals from, or the addition of animals to, already existing groups (the former of which is a common manipulation in studies of territoriality and parental care; Cuthill 1991). However, the guidelines do address some of the adverse effects of field research that can stem from trapping, banding, and visiting nests (see also Henson and Grant 1991, Wilson et al. 1991), all of which may be used in studies involving social manipulation of animal groups.

The paper by Emlen et al. (1989) was submitted to the *Auk* and reviewed after the AOU guidelines (Oring et al. 1988) on the use of wild birds in research were published. Why was this study published in a journal sponsored by a society that had already established guidelines concerning the ethics of various types of research, some of which appear to be violated? Thus, while it is probably true that the two adult females collected by shooting (a fact not included in the original paper) were "humanely collected" in accordance with the AOU guidelines that "Humane use of firearms necessitates that birds be killed outright" (Oring et al. 1988:10a), it is not clear why alternative methods of removing and replacing