

Rediscovery of a long-lost *Charadrius* plover from South-East Asia

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Several pale *Charadrius* plovers associating with Kentish Plovers *Charadrius alexandrinus* in Singapore, Malaysia, Thailand and Vietnam, which were presumed not to resemble any known taxon, have been recorded since 1993. Evidence is presented which establishes that these birds are *Aegialites* [*Charadrius*] *dealbatus*, described by Robert Swinhoe in 1870 as a species distinct from Kentish Plover. Subsequent confusion has resulted in this name being applied to the form of Kentish Plover that occurs in abundance in East and South-East Asia, while the true taxon *dealbatus* has been overlooked by almost all subsequent taxonomists, and mistakenly described and illustrated as Kentish Plover in all studies of this taxon. This paper suggests that this confusion arose, in part, due to misconceptions over the appearance of *dealbatus*, which resulted in many museum specimens of Kentish Plover from East Asia being incorrectly identified and erroneously labelled as *dealbatus*. Swinhoe did not designate a type specimen when he described *dealbatus*, and this was only done in 1896, from a composite series of Swinhoe's specimens that comprised two taxa. Here, we formally select and describe a lectotype of *Aegialites* [*Charadrius*] *dealbatus* from Swinhoe's pre-1870 specimens, list all known Swinhoe specimens of the composite taxa as paralectotypes of *Aegialites* [*Charadrius*] *dealbatus* and establish which specimens represent this taxon and which are Kentish Plover. Comparison with other small *Charadrius* plovers occurring in South-East Asia establishes the diagnosibility of *dealbatus* as a distinct taxon that differs in aspects of plumage, behaviour, habitat preference and breeding distribution from the commonly occurring Kentish Plover in East and South-East Asia. Consistent morphological differences from Kentish Plover include a larger and heavier bill with a pale base to the lower mandible, pale pinkish-grey legs, light sandy-brown upperparts and a longer and more conspicuous wing-bar, particularly across the primaries. We describe plumage differences between sexes and age classes, and compare *dealbatus* with Kentish and Malaysian Plover *C. peronii*. The breeding range remains uncertain but probably lies in coastal South China, and evidence suggests that *dealbatus* is allopatric with Kentish Plover, which breeds in northern China. An investigation to establish the phylogenetic relationship between *dealbatus* and other small *Charadrius* plovers is currently in progress. If *dealbatus* proves to be distinct at the species level, we recommend that the name *Charadrius dealbatus* with the English name 'White-faced Plover' is adopted. The name *Charadrius alexandrinus nihonensis* is available for the larger-billed form of Kentish Plover breeding in north-eastern Asia. The true taxon *dealbatus* is believed to be rare but probably under-recorded.

INTRODUCTION

Kentish Plover *Charadrius alexandrinus* is a common and familiar shorebird, breeding on coastal and inland wetlands throughout the warm temperate regions of Europe, Asia, and northern Africa, and also in North America and on the west coast of South America. Across its vast range there is considerable geographical variation, with five races recognised by del Hoyo *et al.* (1996). Within Asia, there is almost universal acceptance that three races of Kentish Plover occur. As a breeding bird, the nominate race is widespread from southern and western Europe, and North Africa, east across much of central Asia to the Nei Mongol Autonomous Region in north-eastern China. In China, the slightly larger-billed but otherwise similar form, *C. a. dealbatus*, is said to breed from the southern coastal provinces of Hainan, Guangxi and Guangdong, north to Liaoning (Cheng 1987). It is also generally accepted that *C. a. dealbatus* breeds in Japan from Honshu south through Kyushu to the Ryukyu islands (Vaurie 1965, Hayman *et al.* 1986, del Hoyo *et al.* 1996). However, Brazil (1991) referred to the Japanese breeding birds as belonging to the race *C. a. nihonensis*. In addition to these two migratory races, a smaller resident form, *C. a. seebohmi*, breeds in the coastal lowlands of Sri Lanka and the southern tip of peninsular India (Ali and Ripley 1969). A fourth taxon, previously treated as an insular race of Kentish Plover (Chasen 1938, Hoogerwerf 1967), is now widely recognised as a distinct species, Javan Plover *C. javanicus*, (Cramp and Simmons 1983, Inskipp *et al.* 1996, del Hoyo *et al.* 1996, Dickinson 2003, Clements 2007). Javan Plover is believed to be resident on Java, but was discovered to be breeding at Kuala Penet, Lampung, Sumatra, in June 2007 (I. Londo/WCS *in litt.* 2008), and may also breed in

Sulawesi, where it is regularly observed (P. Morris *in litt.* 2007).

Northern populations of Kentish Plover are migratory and winter to the south of the breeding range. In China, wintering birds remain as far north as the Yangtze River, and they are common in coastal regions in the southern coastal provinces of China. Small numbers also winter in southern Japan, and the species is numerous in winter from Taiwan, south through the Malay Peninsula to Singapore, as well as in the Philippines and Borneo (Cheng 1987, Wells 1999, Carey *et al.* 2001). Outside the breeding season, Kentish Plover moults into a drabber plumage, making racial separation of the migratory taxa problematic at this season.

This paper challenges this long-standing arrangement and presents evidence which establishes that the Kentish Plovers of eastern Asia, widely accepted as being *C. a. dealbatus*, are, in fact, largely indistinguishable from Kentish Plovers of the nominate form. We shed new light on the highly distinctive appearance of the taxon *dealbatus*, which has been overlooked in the field, confused and mislabelled in museum collections, and omitted from the published literature since the nineteenth century. We also comment on the validity of *C. a. nihonensis* as a distinct taxon.

THE DISCOVERY OF AN UNKNOWN PLOVER

Kentish Plover is a fairly common winter visitor to Singapore, where small numbers formerly over-wintered on a large land reclamation site at Tuas. In October 1993, PRK and others observed several small *Charadrius* plovers

which were distinctly paler than the accompanying Kentish Plovers. When initially discovered, all were in nondescript non-breeding plumage and closely resembled Kentish Plover, although they consistently differed in their conspicuously paler sandy-brown upperparts and paler greyish or pinkish-brown legs, while in flight the white wing-bar appeared broader and more noticeable. Furthermore, the structure of these birds differed slightly from Kentish Plover: they were noticeably larger-headed and heavier-billed, and slightly longer-legged, particularly the tibia. Notes and field sketches were made and compared with illustrations and descriptions of *Charadrius* plovers in Hayman *et al.* (1986), which depicted one paler bird, described as a non-breeding adult, with the comment ‘...Some, like this individual, may become faded and worn in tropical winter quarters’. However, other than noting these apparently minor differences in plumage and structural characters, no further progress was made towards establishing their identity until February 1994, despite regular observations throughout this four-month period.

On 20 February 1994, PRK, together with Angus Lamont, spent several hours watching the roosting plover flock at Tuas. On this date, many Kentish Plovers had completed their pre-breeding moult, and with these were three extremely distinctive plovers, clearly males, that we could not identify. Like male Kentish Plovers, they showed a dark band across the fore-crown, an orange cap and dark patches at the sides of the breast. Unlike male Kentish Plovers, however, the lores were entirely white and there was only a small, dull spot behind the eye, so the dark eye appeared isolated within the white facial feathering, and seemed exceptionally large and conspicuous. The upperparts were pale sandy-brown, however, like those birds seen earlier in the winter. With these three males were up to five females with similar pale sandy-brown upperparts. As well as sharing structural similarities with the males, these females displayed a warm and fairly bright rufous-brown wash to the cap, and slightly duller rufous-brown patches at each side of the breast, and a variable loreal line; on some birds this appeared as a small rufous-brown spot in front of the eye, while on others it formed a distinct loreal line between the bill and eye. Reference to Hayman *et al.* (1986) again failed to reveal a plover with characters that matched these birds.

This plover flock remained at Tuas until 14 March 1994 when the last bird, a female, was present together with ≥ 25 Kentish Plovers. Shortly after this date, the Kentish Plover flock departed, presumably returning to their northern breeding areas. Although the Kentish Plover flock returned to Tuas in the following winter, the paler birds did not accompany them.

There were no further known or published sightings from Singapore or elsewhere until October 2006, when DNB noted an unusually pale *Charadrius* plover associating with a Kentish Plover on a land reclamation site at Tanjung Tokong, Pulau Pinang, Malaysia, on 11 October 2006, which he tentatively identified as a Malaysian Plover *C. peronii*. Following discussion with PRK, it was realised that these plovers could be the same as the birds seen in Singapore. By December 2006, numbers had increased to ≥ 22 Kentish Plovers and no fewer than 12 unusually pale *Charadrius* plovers. At least five of the latter birds remained until early March 2007, and during this period DNB was able to obtain many

photographs. As with the Tuas birds, these birds underwent a pre-breeding body moult and by early February 2007 they had transformed into a distinctive plover displaying a suite of characters that did not correspond with any taxon described in the available literature. Furthermore, these images closely matched the birds that PRK had described and sketched at Tuas almost 13 years earlier. The last sighting at Tanjung Tokong was of a presumed first-summer male on 28 March 2007.

Observations of Kentish Plovers throughout their breeding and wintering ranges in central and northern Asia, combined with observations of Kentish Plovers of the race *C. a. seebohmi* in Sri Lanka, Javan Plover *C. javanicus* in Java, Indonesia, and Malaysian Plover in Singapore, Thailand and elsewhere in South-East Asia, have established that the field characters associated with these taxa differed significantly from the pale *Charadrius* plovers observed in Singapore and Malaysia.

The search for specimens

Although it was suspected that these pale *Charadrius* plovers might prove to be an undescribed taxon, it seemed inconceivable that such a distinctive plover could have been overlooked in South-East Asia, which has a long history of bird-related research and shorebird studies. The possibility that similar birds may have been previously collected but lie unrecognised in museum collections was investigated.

Raffles Museum of Biodiversity Research, Singapore

PRK examined Kentish Plover specimens held in the Raffles Museum of Biodiversity Research at the National University of Singapore in early 1994. Here, two birds in non-breeding plumage that resembled the pale birds seen at Tuas were located. Both were labelled *Charadrius alexandrinus dealbatus* by the same unknown collector, and were collected at Batu, Selangor coast, Malaya [Malaysia], on 26 November 1906. Although both specimens were in non-breeding plumage, they had been sexed as males. The remaining 16 Kentish Plovers in this collection, from Japan (1), Sarawak (7), Vietnam (4), Malaysia (1) Singapore (2) and Thailand (1), were also labelled *Charadrius alexandrinus dealbatus*, but were indistinguishable from Kentish Plovers which winter in South-East Asia. The two pale specimens (specimen reference numbers ZRC 3.2540 and ZRC 3.2541) were sent on loan to the NHM, Tring, in June 2007 for further detailed examination and comparison with Kentish Plover specimens held in that collection. These specimens are listed in Appendix 1.

Natural History Museum (NHM), Tring, U.K.

Examination of Kentish Plover specimens held in the NHM, Tring, by PRK revealed no fewer than 30 *Charadrius* plovers showing plumage and bare part characters consistent with the pale plovers observed in Malaysia and Singapore. All were collected at locations ranging from central Vietnam to coastal southern China. Significantly, 15 of these specimens, collected by Robert Swinhoe prior to 1870, came from localities along the south coast of China, which Swinhoe (1870) identified as the type locality for the bird he named *Aegialites dealbatus*, (hereafter referred to as ‘Swinhoe’s *dealbatus*’).

Furthermore, all specimens matching the description of 'Swinhoe's *dealbatus*' from the type locality were dated between the months of March and July, with the sole exception of a bird from Macau collected on 30 January 1906. With these, however, were a further 20 specimens of typically darker Kentish Plover, also collected by Swinhoe prior to 1870 from locations in southern China, hereafter referred to as 'eastern' Kentish Plover. All these darker birds had, however, been collected during the winter months between October and March, with the exception of a single August bird from Amoy [now Xiamen, Fujian province, China]. Those specimens identified as 'Swinhoe's *dealbatus*' are listed in Appendix 1, and their locations are shown in Fig. 1.

Smithsonian Institution (USNM), Division of Birds, Washington DC, U.S.A.

The USNM collection holds 46 specimens of Kentish Plover collected in East and South-East Asia, including 41 from China (including Hong Kong), three from Malaysia and two from Thailand. Deignan (1941) examined these specimens and commented that this collection held several pale specimens including a series from Amoy collected in June and July, plus others from northern China, Thailand and Malaysia. B. Schmidt of the Smithsonian Institution, Division of Birds, photographed those specimens to which Deignan referred, enabling us to review the identifications. Based upon these photographs, the identification of nine specimens (five from southern China, one from Thailand and three from Malaysia) has been established as 'Swinhoe's *dealbatus*' and these are listed in Appendix 1. The remainder are undoubtedly typical 'eastern' Kentish Plovers.

National Museum of Natural History (RMNH), Leiden, the Netherlands

H. van der Grouw of the RMNH, Leiden, located four Kentish Plover specimens collected by Swinhoe prior to 1870 in this collection, and photographed these on our behalf. Of these, two collected at Amoy in April 1861 belong with 'Swinhoe's *dealbatus*' and are included in Appendix 1. The remaining two specimens are 'eastern' Kentish Plover.

Other collections

PDR examined the collections held at the Thai Natural History Museum, and the Thailand Institute of Scientific and Technological Research, but was unable to locate any specimens amongst the Kentish and Malaysian Plovers. In addition, the following collections responded to our request for information, but appear not to hold any relevant Swinhoe specimens: American Museum of Natural History, New York, U.S.A.; Museum für Naturkunde, Berlin, Germany; Manchester Museum, England; and Academy of Natural Sciences, Philadelphia, U.S.A.

WHAT IS 'SWINHOE'S *dealbatus*'?

The conflicting appearance of these plovers from within the type locality, together with what appeared to be temporal separation of pale and dark birds, suggested that the bird hitherto recognised as *Charadrius alexandrinus dealbatus* could actually comprise two taxa. To establish

whether the paler birds really were 'Swinhoe's *dealbatus*', reference was made to Swinhoe's original source material, plus his published works, and examination of the specimen designated as the type of *dealbatus*.

Swinhoe clearly recognised that two forms of Kentish Plover were occurring along the coast of southern China. Prior to formally describing these pale-backed plovers, Swinhoe (1863) commented that

the birds that stay to breed along the coasts and islands of South China and Formosa can at once be recognised by their flesh-coloured legs, which in the arrivals from the north are leaden. Our southern birds are, moreover, larger, very pale, in some cases almost white, and never, to my knowledge, attain aught but an indication of the bright rufous and black that adorn the head of the northern form.

Shortly thereafter, Swinhoe (1870) published a short paper in *Ibis* entitled 'On the Plovers of the genus *Aegialites* found in China' in which he formally recognised these paler plovers as distinct from 'eastern' Kentish Plover [then *Aegialites cantianus*], and which he named *Aegialites dealbatus*. Swinhoe (1870) also included the following description of *dealbatus* which supplemented the details which previously appeared in Swinhoe (1863) with the following description:

Bill black, with an ochraceous-yellow spot at base of lower mandible. Legs light yellowish-brown or flesh colour. In other respects like a washed out *Aeg. cantianus*... The male in summer plumage always has the latero-pectoral patch more or less black, as also the band over the white forehead. The loreal streak sometimes shows in pale rufescent-brown, sometimes in black spots, and is rarely entirely wanting. The crown has generally some rufescence; and a rufescent tinge often washes over the back... The female in July has a slight rufescence on the head, and a rufescent brown breast-patch. She seldom acquires any of the dark markings of the male.

At the time, Swinhoe would have been extremely familiar with Kentish Plover, which he described in the 1870 paper as 'coming down the Chinese coast in winter in great numbers', a statement that still holds true today. Swinhoe's conclusion was that *dealbatus* closely resembled 'eastern' Kentish Plover and he appears to have been readily able to distinguish the two taxa. Despite this, he noted that 'the legs and the bill afford the only reliable characters for discrimination', but then commented that 'in some specimens of true *Aeg. cantianus* I notice a paleness at the base of the lower mandible, and also in some a paleness of the tarse [sic], both of which by a little intensifying would produce the results characterizing our species'.

Swinhoe's ability to distinguish between these two taxa did not extend to his contemporaries. When Swinhoe's specimens were distributed into various collections, new labels were added that, in some cases, clouded the clarity which Swinhoe provided. For example, Seebohm correctly relabelled 12 of 'Swinhoe's *dealbatus*' specimens (as *Charadrius cantianus dealbatus*), but also misidentified five 'eastern' Kentish Plovers, which he also labelled *dealbatus*. Similarly, Hume correctly relabelled two of 'Swinhoe's *dealbatus*' specimens, but mislabelled an 'eastern' Kentish Plover as *dealbatus*.

Selection of a lectotype and identification of the type series

Little more appears to have been published until Sharpe (1896a) provided a detailed description of the bird he considered to be *Charadrius cantianus dealbatus*. In this, he described the upperparts of the male as 'general colour above pale earthy brown, with faint remains of paler margins to feathers', while the crown was described as 'ash-brown, washed with light tawny-rufous, especially distinct towards the nape'. He considered the 'forehead and a distinct eyebrow white, with a broad black band separating the white of the forehead from the brown of the crown; eyelid and loreal streak black; feathers below the eye and sides of face white, with a black patch on the hinder ear-coverts; cheeks and under surface of body pure white, with a patch of black on each side of the chest'. Sharpe also described the female as appearing 'similar to the male, but with less rufous on the head, this being represented by a tinge over the eye and round the nape, the black band on the fore part of the crown absent, the black patch on each side of the chest represented by a brown patch with a rufous tinge.'

The above description, which mentions these birds showing a black loreal streak, suggests that Sharpe may have included some male 'eastern' Kentish Plover, perhaps incorrectly labelled as *dealbatus*, within the series he was examining. Nevertheless, this was followed by a discussion in which Sharpe stated that

I do not see any advantage in upholding *Aegialites dealbatus*, which is supposed to differ by its paler legs. While admitting that most of the Chinese birds differ in this way, there are many birds, also from China, which have dark legs like the ordinary typical form, while it is equally certain that birds from other localities also have pale legs. In one instance I have seen a bird that had one dark leg and one pale one, so that apparently the skin of the leg dries in different colours.

As Swinhoe did not select a particular specimen to represent the type of *Aegialites dealbatus*, there is no specific type locality as such. Consequently, the type locality becomes the entire range of the species as defined by Swinhoe, i.e. 'the South coast of China, including Formosa and Hainan'. Sharpe (1896b), with access to these same specimens (including the incorrectly labelled specimens), selected a specimen (BMNH 1896.7.1.559), to represent the type of *Aegialites dealbatus*, which is retained in NHM, and carries three labels. The first is in the handwriting of Robert Swinhoe, who collected the bird at Amoy in May 1861, and bears the name *Hiaticula nivosus*, Cass., but which has been subsequently changed, apparently in Swinhoe's hand, to *Hiaticula dealbata* and noted as a female (although plumage characters suggest it to be an abraded male). This specimen later entered the collection of Henry Seebohm, who added a second label using the name *Charadrius cantianus dealbatus*. The third label, added by NHM when Seebohm's specimens came to the collection shows this be the lectotype of *Aegialitis dealbatus*.

In selecting the lectotype from Swinhoe's specimens, Sharpe (1896a, b) neglected to provide a description of this specimen. In these circumstances, Warren (1966) stated that the 'listing of a syntype as "the Type", as was often done in the Catalogue of Birds (BM 1874–1898), does not constitute its designation as lectotype; nor of course does its listing in the present work'. Thus, Warren



Plate 1. Lectotype of *Aegialites* [*Charadrius (alexandrinus)*] *dealbatus* held in NHM, Tring, (BMNH 96.7.1.559), collected by Robert Swinhoe at Amoy [Xiamen, Fujian province, China] in May 1861. In all plumages, this taxon is characterised by its pale legs and pale base to the lower mandible, larger, heavier bill structure, significantly paler upperparts and longer and more conspicuous wing bar, particularly across the inner primaries, than Kentish Plover. (Peter Kennerley © NHM, Tring)

argued that 1896.7.1.559 cannot be the lectotype of *dealbatus* as it is not accompanied by a description. To date, therefore, a lectotype of *dealbatus* as defined by Warren (1966) has not been designated. In order to fix the identity of *Aegialites* [*Charadrius*] *dealbatus*, a lectotype must be selected from the material which Swinhoe had available when he described *dealbatus*. The selection of a lectotype is necessary because *dealbatus* is presently represented by a composite series comprising two distinct taxa. There are 15 specimens of 'Swinhoe's *dealbatus*' in NHM, Tring, together with 21 'eastern' Kentish Plovers, all collected by Swinhoe from the coast of south China and Hainan on dates prior to 1870 (i.e. the material that Swinhoe would have had available to him when describing *dealbatus*). From these specimens, we hereby designate BMNH 1896.7.1.559 as the lectotype of *Aegialites* [*Charadrius*] *dealbatus* (Plate 1). Support for this decision is provided by reference to the characters which Swinhoe (1863, 1870) used to describe *Aegialites dealbatus*, and which apply to this specimen.

The 14 remaining specimens of 'Swinhoe's *dealbatus*' together with the lectotype, plus a further 21 'eastern' Kentish Plovers collected by Swinhoe prior to 1870 from the type locality and held in NHM, Tring, form part of the composite series and become, by default, paralectotypes of *Aegialites dealbatus*. In addition, all additional Swinhoe specimens collected prior to 1870, including ten held in USNM, Washington, and the four in the RMNH, Leiden, also become paralectotypes. Appendix 2 provides details of all known paralectotypes of *Aegialites dealbatus* and identifies those specimens that are correctly assigned to 'Swinhoe's *dealbatus*' and those which are 'eastern' Kentish Plovers, incorrectly placed within this taxon. This list is not exhaustive, and others may come to light in the future.

Description of the lectotype of *Aegialites* [*Charadrius*] *dealbatus*

The lectotype (BMNH 1896.7.1.559) was collected at Amoy [Xiamen, Fujian province, China] in May 1861 by Robert Swinhoe, and is housed in the NHM, Tring. Although the data on the label states that this specimen

was sexed as a female, plumage characters strongly suggest this bird to be a male.

Slightly larger than Kentish Plover. **Bill** black with a pale base to the lower mandible, appearing slightly longer than that of Kentish Plover with prominent 'culmenary bulge' at the tip. **Tarsus** and **tibia** rich tan-brown on dried specimen. **Toes** dark brown. **Claws** black. **Forehead** and **supercilium** white, **lores** white, sparsely flecked with small, pale brown spotting. **Ear-coverts** lightly washed pale greyish-brown. **Fore-crown** marked with a broad, dark brown band. **Crown** pale sandy-brown, becoming warm orange on the lower edge of the rear crown. **Collar** white. **Mantle** and **scapulars** pale sandy-brown with thin, dark brown shaft streaks and slightly paler, narrow tips. **Greater coverts** pale greyish-brown, slightly darker than the median coverts and broadly tipped white. **Median coverts** pale greyish-brown lacking broad white tips. **Lesser coverts** dark brown, becoming darkest towards the carpal bend. **Primary coverts** dark brown, narrowly tipped white, and appearing as the darkest part of the closed wing. **Alula** dark brown at the tip, paler brown towards the base. **Inner primaries** (P1–P6) mid brown with white panel on the basal half of the outer web, becoming darker towards the tip, although each narrowly tipped creamy-white. **Outer primaries** (P7–P10) dark brown and unmarked but with creamy-white shafts. **Secondaries** mid brown as the inner primaries, with narrow white tips to the outermost, these tips becoming progressively broader and whiter towards the body, and extending along the outer web on the inner secondaries. **Tertials** pale sandy-brown and heavily worn. **Tail** with central two pairs of rectrices (T1–T2) dark brown, becoming darker, colder brown towards the tip; this being the darkest region of upperparts. Feather shafts blackish. Rectrix T3 dull creamy-white at the base, becoming pale grey-brown towards the tip, this being more extensive on the outer web than the inner. The outer web also showed a narrow white fringe extending along the feather to the tip but there was no similar pale fringe along the inner web. Fourth outer pair (T4) creamy-white apart from a faint brown, lozenge-shaped spot near the tip of the inner web. Outer two pairs of rectrices (T5–T6) entirely creamy-white and unmarked. Entire **underparts** from the **chin** to the **undertail-coverts** white with a faint cream tinge, and unmarked. **Sides of the breast** marked by small, dark brown lateral breast patches, extending from the carpal bend to the sides of the breast but not reaching onto the breast. **Wing** 113 mm; **tail** 47 mm; **tarsus** 28.6 mm; **bill** length to feathering 18.5 mm.

Additional details, including descriptions of other known plumages and features which define the distinctive character of 'Swinhoe's *dealbatus*', are detailed in **Diagnosis** (below).

Confusion between 'Swinhoe's *dealbatus*' and eastern Kentish Plover

The status quo was maintained until Hartert and Jackson (1915) undertook a review of the plovers comprising the genera *Charadrius*, *Aegialites* and *Eudromias*, which they combined into the single genus *Charadrius*. With Swinhoe's specimens of *dealbatus* available to them at NHM, they realised that Sharpe's (1896a) decision to treat Kentish Plover as a monotypic species was unsound, but they appear unaware that a 'type' specimen of *dealbatus* had been selected by Sharpe (1896b). Even with this

series available to them, they apparently failed to appreciate fully the differences between 'Swinhoe's *dealbatus*' and 'eastern' Kentish Plovers. Furthermore, they appear not to have referred to the original descriptions provided by Swinhoe (1863, 1870), as the issue of leg colour was still problematic. For example, Hartert and Jackson commented that birds obtained by Alan Owston's collectors in Japan, which they believed to be *dealbatus*, were described on the specimen labels as showing black legs. They did, however, recognise that the larger, stouter bill of 'Swinhoe's *dealbatus*' set it aside from 'eastern' Kentish Plover, and they considered this character to be sufficiently distinctive to reinstate *dealbatus* as a race of Kentish Plover, which they named *Charadrius alexandrinus dealbatus*. It is surprising, however, that they did not acknowledge the distinctive appearance of *dealbatus*, in particular the paler upperparts and lack of a dark loreal line, as in the same article they used these same features in the diagnosis of *C. a. nivosus* as a race of Kentish Plover. This treatment of *dealbatus*, as being larger-billed but otherwise very similar to the nominate race of Kentish Plover, was followed by all subsequent authorities throughout the twentieth century. At this point, Hartert and Jackson also mistakenly included Taiwan, the Ryukyu Islands and southern Japan within the range of *dealbatus* when they wrote:

This form is resident in south China, Hainan, Formosa, and the Riukiu (Loo-Choo) Islands, and Japan at least as far north as Yokohama, where in winter *C. a. alexandrinus* also occurs as well. In the British Museum, a specimen from Amherst in Burma; also a female from Zaidam in Central Asia belongs to this race.

The treatment of *dealbatus* by Hartert and Jackson (1915), which correctly described it as being larger-billed, but erroneously concluded it to be otherwise very similar to the nominate race of Kentish Plover, has become widely accepted. Furthermore, the inclusion within its distribution of extensive regions of eastern Asia from which it is in fact unknown (there are no specimens or substantiated reports from any of these countries or regions mentioned above) has given rise to the misconception that *dealbatus* is the widely occurring form of Kentish Plover in eastern Asia. 'Swinhoe's *dealbatus*' then vanished from the public perception, and subsequent taxonomists and authors throughout the twentieth century overlooked its distinctive appearance, assuming all 'eastern' Kentish Plovers to be *dealbatus*.

Comments on additional specimens of 'Swinhoe's *dealbatus*' in NHM

Following Hartert and Jackson's (1915) treatment of Kentish Plover, it appears that little attention was paid to the separation of 'Swinhoe's *dealbatus*' and 'eastern' Kentish Plover, as there was little or no perceived difference between the two taxa. So when further specimens of what are clearly 'Swinhoe's *dealbatus*' were registered at NHM, including eight specimens from the Delacour and Jabouille Collection, taken at the former French colony of Kouang-Tcheou-Wan [Zhanjiang, Guangxi province, China] in 1932, and four collected during the Franco-British second expedition to Indo-China by Delacour and Lowe, mostly from Thuan An, near Hué, Vietnam, in September (2), November 1925 (1), and April 1926 (1), all were correctly labelled as

dealbatus. However, with the four from Thuan An, but not distinguished from them, are nine 'eastern' Kentish Plovers, also labelled *dealbatus* and collected in November 1925. Consequently, the two taxa were included together in museum trays without any attempt to separate the pale-mantled and dark-mantled birds, resulting in *dealbatus* becoming a composite comprising two taxa.

WHAT ARE 'EASTERN' KENTISH PLOVERS?

If the name *dealbatus* can be applied only to those birds matching the description given by Swinhoe, then the darker-mantled, dark-legged Kentish Plovers that occur in abundance along the coasts of East and South-East Asia must be something else. In fact, these latter birds are not readily separable from the nominate race of Kentish Plover, although some individuals show a tendency towards a larger and heavier bill, which can approach that of 'Swinhoe's *dealbatus*'.

When reviewing the extensive material available from East Asia in the US National Museum, Deignan (1941) remarked that he 'arrived at conclusions rather at variance with those of the most recent revisers'. He commented that 'A good series from Amoy (June, July) are decidedly paler than birds from Europe, have a longer and more massive bill, and in every case have the upperparts suffused with rufous. Swinhoe's description of *dealbatus* as a "washed out", rufescent tinged *alexandrinus* fits these specimens perfectly'. He goes on to note that 'Another series of badly worn birds from Chihli (July) are probably *dealbatus*. In addition, I have seen examples of this race from Hong Kong (October, November), and Hainan (March)'. Outside China, he commented that 'Two birds from Thailand (November, March) and two from Malaya (December), all in winter dress, are so remarkably pale above that they stand out from all other Old World specimens I have seen and can be fairly compared with *nivosus* and *tenuirostris* of the New World'.

It seems clear that what Deignan had discovered was a series of specimens that matched 'Swinhoe's *dealbatus*'. Deignan then compared these paler specimens with a series of birds from breeding locations in Japan, which he described as having 'the upperparts without the least rufescent wash and quite as dark as European specimens, but differ from the latter in having the bill as long and as massive as *dealbatus*', although this statement is not quantified or supported by measurements. Deignan proposed the name *Charadrius alexandrinus nihonensis* for the Kentish Plovers featuring this larger, heavier bill structure, with an adult male selected as the type specimen (USNM 95938), taken at Aomori, Hondo [Honshu], on 23 April 1876 by Captain T. W. Blakiston. We have examined photographs of the type specimen of *nihonensis* (Plate 2) and can confirm that it is a dark-mantled, dark-legged male Kentish Plover in breeding plumage, and closely resembles the nominate form, other than its marginally larger bill.

Deignan also noted, however, that birds taken in China to the north of the range of *dealbatus* are 'dark backed and have a bill somewhat smaller than *nihonensis* but nevertheless larger than *alexandrinus*'. While recognising there is substantial variation in bill size in Kentish Plover, and also that young birds tend to have smaller bills than



Plate 2. Type specimen of *Charadrius alexandrinus nihonensis* described by Deignan (1941), and held in US National Museum, Washington DC, USA (USNM 95938), collected by Captain T. W. Blakiston at Aomori, Hondo [Honshu], Japan, on 23 April 1876. Birds assigned to this form closely resemble the nominate race of Kentish Plover but are distinguished by a slightly heavier bill structure, marginally darker upperparts and a richer cinnamon-orange crown. (Brian Schmidt © USNM, Washington DC)

their parents, Deignan concluded that 'even the shortest billed examples from the Pacific coasts of Asia have the bill rather more massive than European birds of the corresponding age and sex—a difference that must be seen to be appreciated—and are thus better called *nihonensis*'.

Comments by Nechaev (1988), who examined Kentish Plover specimens collected during the breeding season from all parts of the territory of the former Soviet Union (FSU), support Deignan's findings. Nechaev concluded that nominate *alexandrinus* occupied the breeding range of Kentish Plover throughout the FSU, with the exception of Sakhalin, and Kunashir and Moneron in the southern Kuril Islands. Here, he established that breeding birds differed from nominate *alexandrinus* in their larger bill structure, and, to a lesser extent, longer wing length. He considered the Sakhalin and Kuril birds to be otherwise identical in appearance to the nominate form and concluded they belonged to the race *dealbatus*. In fact, these slightly larger birds fit the description of *C. a. nihonensis*, which was (and mistakenly still is) treated as a synonym of *dealbatus*. Nechaev also recognized that the Kentish Plovers breeding in the southeast Russian region of Primorsky, bordering the Sea of Japan, had a bill structure that was, on average, slightly smaller than that of the birds breeding on Sakhalin and Kunashir, but marginally larger than that of nominate *alexandrinus* from elsewhere in the FSU. This suggests that an imperceptible change from *nihonensis* to *alexandrinus* occurs in this region but there is no convenient geographic division which separates the two races.

Deignan (1941) went largely unnoticed, and was certainly overlooked by those familiar with Kentish Plover in Asia, who continued to refer to 'eastern' Kentish Plovers as *dealbatus*. All recent accounts of Kentish Plover have incorrectly treated *nihonensis* as a junior synonym of *dealbatus*. Other than bill structure, there are additional minor differences that set *nihonensis* apart from nominate *alexandrinus*, although it is not known to what extent the intermediate populations on the adjacent mainland also exhibit these characters. It is marginally darker on the upperparts and, most conspicuously, the males display a

dark, rich cinnamon-orange crown that nominate birds rarely approach. In addition, ‘eastern’ Kentish Plover shows a greater tendency towards displaying a narrow but complete breast-band across the upper breast, particularly in females (and males in non-breeding plumage?), a feature rarely encountered in nominate *alexandrinus* (Chandler and Shirihai 1995, Leader 2001).

Outside the breeding season, it is uncertain which races of Kentish Plover occur in South-East Asia. It seems probable that birds breeding over an extensive region of northern Asia, and probably within the range of nominate *alexandrinus*, may be occurring alongside larger-billed birds resembling *nihonensis* from the east of the range. In juvenile, first-winter and adult non-breeding plumages, however, separation of the races of Kentish Plover using bill structure alone has proved impossible. Although a small minority of Kentish Plovers wintering in South-East Asia, including birds observed in the field and specimens from this region examined in museum collections, do appear to differ from Kentish Plovers occurring to the west, many are identical and only an insignificant minority are slightly larger-billed; and there is no way to establish their place of origin.

ETYMOLOGY

The species was named *Aegialites dealbatus* by Swinhoe. Species previously forming the genus *Aegialites*, which is no longer recognised, are now included within *Charadrius*. The genus name *Charadrius* is believed to have its origin in the ancient Greek word *kharadrios* meaning ‘a nocturnal waterbird’, while *dealbatus* is derived from the Latin verb *dealbare*, meaning ‘to whiten’. This was presumably the term which Swinhoe thought best described the pallid appearance of this plover when compared with the Kentish Plovers with which he was familiar.

DIAGNOSIS OF ‘SWINHOE’S *dealbatus*’

Size and structure

Similar in size to migratory forms of Kentish Plover occurring in Asia, but slightly and consistently larger and heavier-bodied. In addition, the head appears proportionately larger than that of Kentish Plover and

this, together with the more substantial bill structure, gives the head a robust and heavier appearance. In this respect, the bill structure and head shape of *dealbatus* appear closer to that of the slightly larger Lesser Sand Plover *C. mongolus* than to Kentish Plover. In addition, the tibia appears to be consistently longer than that of Kentish Plover, but it has not been possible to substantiate this by measurement from specimens.

To investigate possible structural differences, a series of measurements was taken from specimens of ‘Swinhoe’s *dealbatus*’, Asian *C. a. alexandrinus*, *C. a. seebohmi* and *C. peronii* (see legend in Table 1 for details).

Although there is extensive overlap with Kentish Plover on all measurements, these demonstrate that ‘Swinhoe’s *dealbatus*’ is, on average, slightly longer-winged and longer-legged, and also that it consistently shows a slightly larger, heavier bill than Kentish Plover (Table 1). These apparently minor structural differences can be surprisingly apparent in the field where, in particular, the bill structure of *dealbatus* appears more massive and blunt-tipped, and more parallel-edged and ‘tubular’ in shape than that of Kentish Plover. In *dealbatus*, the ratio of ‘nail’ length to exposed culmen length has a mean value of 0.49, compared with mean values of 0.47 in ‘eastern’ Kentish Plover, 0.43 in *C. a. seebohmi* and 0.51 in *C. peronii* (Table 1). Although these mean values are quite similar, when viewed on birds in the field, they translate to the short, stubby appearance to the bill of Malaysian Plover and to the short and relatively slender bill of *C. a. seebohmi*. Even between ‘Swinhoe’s *dealbatus*’ and ‘eastern’ Kentish Plover the visible difference can be striking. This feature is particularly noticeable when the bird turns slightly away from the observer, fore-shortening the bill length.

Plumage

All birds observed, and the specimens examined to date, have been on dates ranging between late September and mid-July. Criteria used to establish ages referred to below are those used to age and sex similar *Charadrius* plovers, as described by Prater *et al.* (1977). Body moult occurs from late December to early February, and during this period birds appear transitional in appearance, between presumed first-winter and first-summer breeding plumages described below. A selection of images that illustrate a wider range of plumages than appear here can be found in Bakewell and Kennerley (2007, 2008).

Table 1. Comparison of wing and tarsus length, and bill structure taken from specimens at NHM, Tring, of ‘Swinhoe’s *dealbatus*’, Kentish Plover *C. a. alexandrinus* from locations in East and South-East Asia, Kentish Plover *C. a. seebohmi* from Sri Lanka and Malaysian Plover *C. peronii* from locations throughout South-East Asia. Measurements of sexes are combined. Wing length (maximum chord) was measured to nearest mm, with measurements of tarsus and bill structure taken to nearest 0.1 mm. The term ‘nail’ here refers to the dertrum, this being the ‘culmenary bulge’ or distal bill swelling found on the upper mandible. Nail length is defined as the distance from the bill tip to the point where the ‘culmenary bulge’ meets the culmen, and nail depth is the maximum bill depth measured over the ‘culmenary bulge’. Figures in parentheses represent limits, standard deviation and sample size.

	‘Swinhoe’s <i>dealbatus</i> ’	<i>C. a. alexandrinus</i>	<i>C. a. seebohmi</i>	<i>C. peronii</i>
Wing	113.1 (105–121; 3.20; 32)	111.7(104–117; 3.05; 101)	101.4(96–106; 3.13; 10)	98.8(94–102; 2.28; 41)
Tarsus	28.2(25.6–29.7; 0.87; 32)	27.2(24.6–29.4; 1.30; 97)	26.2(24.9–26.8; 0.74; 10)	28.8(26.0–31.0; 1.29; 40)
Bill length (to skull)	23.7(21.1–25.7; 1.07; 32)	22.3(19.5–24.4; 1.02; 101)	19.5(18.8–20.7; 0.60; 9)	20.8(19.4–22.8; 0.81; 40)
Bill length (to feathering)	17.8(16.4–19.5; 0.87; 31)	16.5(14.1–18.7; 1.16; 100)	15.0(14.1–15.9; 0.76; 9)	15.0(13.7–16.8; 0.55; 40)
‘Nail’ length	8.8(8.1–10.2; 0.50; 32)	8.0(6.2–9.5; 2.14; 94)	6.5(5.7–6.7; 0.34; 9)	7.4(6.5–8.0; 0.31; 40)
Bill depth at ‘nail’	3.8(3.4–4.4; 0.24; 30)	3.6(3.0–4.0; 0.57; 91)	3.1(2.8–3.4; 0.21; 9)	3.8(3.4–4.1; 0.19; 38)
Bill width at feathering	4.9(4.1–5.6; 0.39; 29)	4.7(3.7–5.6; 0.34; 94)	4.3(3.8–4.8; 0.31; 10)	4.9(4.3–5.6; 0.28; 39)
Mean ‘nail’ length/bill length to feathering	0.49	0.47	0.43	0.51



Plate 3. Adult male *Charadrius [alexandrinus] dealbatus*, breeding plumage (early February onwards), Tanjung Tokong, Penang, Malaysia, 6 February 2007. (David Bakewell)



Plate 6. Adult female *Charadrius [alexandrinus] dealbatus*, breeding plumage (early February onwards), Tanjung Tokong, Penang, Malaysia, 6 February 2007. (David Bakewell)



Plate 4. Presumed first-winter male *Charadrius [alexandrinus] dealbatus* (October to late December), Tanjung Tokong, Penang, Malaysia, 24 November 2007. (David Bakewell)



Plate 7. Presumed adult female *Charadrius [alexandrinus] dealbatus*, non-breeding plumage (October to late December), Tanjung Tokong, Penang, Malaysia, 21 November 2007. (David Bakewell)



Plate 5. Presumed first-summer male *Charadrius [alexandrinus] dealbatus*, breeding plumage (early February onwards), Tanjung Tokong, Penang, Malaysia, 6 February 2007. (David Bakewell)



Plate 8. Presumed juvenile *Charadrius [alexandrinus] dealbatus*, Karon Beach, Phuket, Thailand, 15 November 2003. (Petteri Lehikoinen)

Wing and tail pattern

Both sexes share a similar wing and tail pattern, which does not appear to differ with age. Although 'Swinhoe's *dealbatus*' shares with Kentish Plover a conspicuous white wing-bar extending across the centre of the upperwing, the overall upperwing colour and pattern differs substantially. The upperwing-coverts (except the primary coverts) are much paler than those of Kentish Plover and therefore provide a greater contrast with the dark alula, primary coverts and outer primaries than Kentish shows. This pallid appearance is further enhanced by the extension of white along the outer webs of the inner primaries, which is longer than on Kentish, while on the inner wing broad white tips to the greater coverts enhance the wing-bar width towards the body, so that the wing-bar appears both broader and more conspicuous when compared to that of Kentish Plover.

Unlike Kentish Plover, the outer greater coverts and the outer median coverts of *dealbatus*, which are also tipped white, contrast against the sandy-brown lesser coverts and slightly darker mid-brown, white-tipped inner primary coverts to form a short, narrow bar which branches from the greater coverts and curves towards the alula, but does not reach the outer edge of the wing. In addition, fairly broad and conspicuous white tips to the dark brown secondaries create a third white bar in the wing, along the trailing edge of the wing in flight.

Also visible in flight, the white in the tail appears more conspicuous than that of Kentish Plover, with the outer three pairs of rectrices being almost entirely white, and only the inner two pairs being dark brown and lacking white.

At rest, differences in the colour of the fringing to the lesser and median coverts on the closed wing are apparent. On Kentish Plover these fringes are buff-brown and show subdued contrast with the feather centres, while on *dealbatus* they are whitish and show a distinct contrast, although this becomes less apparent with time as a result of feather wear. This difference can also be apparent on birds in flight, with the paler lesser and median coverts of *dealbatus* contrasting with the darker brown marginal coverts, and forming a noticeable dark bar along the leading edge of the inner wing. In Kentish Plover, the inner wing appears much darker and there is little or no trace of the darker marginal covert-bar.

Adult male breeding plumage (early February onwards). Plate 3

Pattern resembles male Kentish Plover, with white forehead and supercilium, orange crown and dark lateral breast-patches. Unlike Kentish Plover, the crown is purer, brighter orange, the loreal region and ear-coverts largely or entirely white—although some birds do show scattered darker feathering or a dark smudge immediately in front of the eye, this being most conspicuous when worn but occasionally visible on birds in fresh plumage in February. Exceptionally, a male observed by DNB (February in Singapore) showed a narrow, dark line extending from the eye to the bill-base. The white forehead is broader and more extensive than in Kentish Plover, so the dark eye is isolated and surrounded by white feathering, resembling Snowy Plover, and the supercilium is broader and longer, with white extending well behind the eye. The blackish frontal bar across the fore-crown is wider than in male Kentish, and the crown bright orange rather

than dull orange. The nape is white, forming a complete white collar separating the orange crown from the mantle, whereas on Kentish a narrow brown line extending down from the crown divides the white collar. The entire upperparts, including the mantle, scapulars, wing-coverts and tertials, are uniform pale sandy-brown, and clearly paler than the corresponding darker, wet-sand tone to the upperparts of Kentish Plover. The darker primaries project slightly beyond the longest tertial. A conspicuous blackish-brown patch on the side of the breast in front of the carpal bend is narrower, smaller and shorter than the equivalent patch on male Kentish Plover, resulting in the extent of white between the breast-patches being consistently wider than shown by Kentish Plover. Otherwise, the entire underparts from chin to undertail-coverts are white.

Presumed first-winter male non-breeding plumage (October to late December). Plate 4

Resembles the adult male breeding plumage but the head pattern is subdued, with the supercilium behind the eye lightly washed diffuse grey, and light grey around and below the lower edge of the eye, forming a dark 'shadow'. In front of the eye, this appears as a small grey spot, but otherwise the lores remain white. The forehead is white, but the dark fore-crown bar is largely obscured with whitish tips, and appears pale grey. The crown is pale sandy-brown like the mantle, but the sides to the crown and hind-crown are dull orange-brown. The dark patches on the sides of the breast appear slightly greyer and paler than those of the breeding male.

Presumed first-summer male breeding plumage (early February onwards). Plate 5

Similar to adult male in breeding plumage and some may not be separable (e.g. see leg-flagged male in Bakewell and Kennerley 2008, plate 11, which was aged as a first-winter when trapped in October 2007). Other birds assumed to be this age differ from the adult male in showing a narrow and broken dark frontal bar on the fore-crown, which in some individuals can be almost absent. The crown is duller than bright orange of the adult, particular towards the centre where it is usually similar in colour to the mantle, but becoming brighter at the sides and across the lower rear-crown. The lateral breast-patches are usually smaller and less obvious than those of the adult male, varying in colour between sandy-brown (as the mantle) and dull blackish-brown, but at this age often two age classes of feathers are present, creating a mottled appearance to these patches. The replaced mantle and scapulars are slightly warmer and darker than in the adult male, and contrast with the retained, worn and paler juvenile wing-coverts.

Adult female breeding plumage (early February onwards). Plate 6

The overall appearance of the upperparts is consistently paler than in Kentish Plover, while the crown and breast-patches are sandy-brown with a fairly bright rufous or orange wash, and recall female Malaysian Plover. It usually lacks the entirely white-faced appearance of the male, although the forehead and supercilium are white. However, the lores and ear-coverts are pale sandy-brown with a light rufous or orange wash, forming a distinct eye-stripe. The crown is sandy-brown with a rufous or orange

wash, hooking down behind the supercilium to join the eye-stripe behind eye. The nape is white, forming a complete collar separating the crown from the pale sandy-brown mantle. The entire upperparts are pale sandy-brown as in the male, although indistinct dull chestnut-brown fringes may be apparent on the scapulars, giving them a slightly warmer and richer appearance compared with the mantle. The lateral breast-patches are pale sandy-brown with a rufous or orange wash, similar to the crown colour or slightly duller and browner and, as in the male, not as deep or extensive as on female Kentish Plover. The entire underparts from chin to undertail-coverts are white, and the extent of white between the two breast-patches is consistently wider than shown by female Kentish Plover.

Presumed adult female non-breeding plumage (October to late December). Plate 7

Differs from the adult female breeding plumage by its lack of reddish-brown on the crown and breast-patches. The extent of the loreal line is variable; on some birds this forms an indistinct sandy-brown line reaching to the bill, while on others the loreal region remains white or shows an indistinct sandy-brown spot immediately in front of the eye. The dark coloration on the ear-coverts is much less extensive than shown by Kentish Plover, not extending onto the lower ear-coverts. The upperparts including the crown and mantle are uniform pale sandy-brown. However, scapulars usually contrast with the paler-fringed wing-coverts when visible.

Juvenile. Plate 8

Closely resembles the adult female in non-breeding plumage but differs in appearance by the presence of narrow but conspicuous pale fringes to the mantle and scapulars, giving the upperparts a slightly scaled appearance.

Bare parts

Legs: variable in colour. Adult males vary from dull mid-grey with a slight pinkish tinge to pale flesh, the legs appearing darker on freshly moulted males in February and March. The legs of adult females are distinctly paler than those of most males, with grey tones almost or entirely absent, and replaced with dull pink or flesh tone, sometimes with a hint of ochre. Importantly, however, *the legs are invariably and conspicuously paler than the bill.* Only the most extreme Kentish Plover will occasionally show leg colour approaching that of *dealbatus*, and no *dealbatus* has been noted with legs approaching the dark grey of Kentish Plover. **Bill:** in both sexes black, apart from the base of the lower mandible which is yellowish-brown, similar in pattern and colour of the lower mandible of Malaysian Plover. **Eye:** black, and appearing proportionately larger than the eye of Kentish Plover

Moult and wear

The moult strategy has not been studied in detail, but is believed to be similar to that of Kentish Plover. All birds appear to undertake a pre-breeding moult between December and January, during which the distinctive breeding plumage is acquired, although in second calendar year birds the brighter tones of the breeding plumage may be subdued. As no male specimens (collected between May and July) show the distinctive orange cap seen in the wintering areas, it is assumed that this abrades fairly

quickly to reveal the pale brown feather-bases, possibly as early as May, when some small, dark feathering may appear on the lores, very occasionally forming a solid loreal line.

Following the breeding season, it is assumed that a complete moult takes place although the timing for this has not been established. What is currently uncertain is why some birds wintering in Singapore and Malaysia adopt a pale, nondescript plumage outside the breeding season, while birds wintering in Vietnam retain the breeding plumage throughout the winter months. It now seems likely that at least some of these early-arriving birds in nondescript plumage are first-winter birds, which moult into a 'first-summer' plumage the following spring. This would accord with other Asian *Charadrius* plovers, which are either resident in the tropical regions or short-distance migrants which retain the same 'breeding' plumage throughout the year, including Malaysian Plover, Javan Plover, Kentish Plover *C. a. seebohmi* and Little Ringed Plover *C. dubius* of the south Asian form *jerdoni*. Further observations should provide answers to these questions.

COMPARISON WITH SIMILAR TAXA

Kentish Plover

Migratory races of Kentish Plover are similar in size to 'Swinhoe's *dealbatus*', but invariably show dark lores and dark feathering around and behind the eye. In all plumages, the upperparts of both sexes of Kentish Plover are dull brown and appear considerably darker and browner than *dealbatus*. Both sexes of Kentish Plover also show larger and more extensive dark patches at the sides of the breast, appearing wider and usually extending well forward of the carpal bend, on some individuals even meeting across the centre of the breast (Chandler and Shirihai 1995, Leader 2001), particularly in 'eastern' Kentish Plovers. Another significant differentiating character, particularly useful on birds in first-winter plumage, is the extent of dark coloration on the lower ear-coverts below and behind the eye, which is always greater in Kentish Plover. Male Kentish Plovers in breeding plumage display a dark frontal bar on the fore-crown but this is usually narrower than that shown by 'Swinhoe's *dealbatus*', and the orange crown is slightly duller, more subdued and shows a distinct cinnamon tone.

The resident race *C. a. seebohmi* occurring in Sri Lanka and southern India is a distinctive taxon that is significantly smaller than the northern migratory form of Kentish Plover, overlapping in size with Javan and Malaysian Plovers. Prior to the pre-breeding moult, males can show restricted black feathering on the lores, with most birds retaining a small patch of dark feathering immediately in front of the eye or a narrow, dark line across the lores, flecked with white feathering. Following the pre-breeding moult, in late February, all males from a sample of over 80 observed in Sri Lanka showed a narrow but solid dark line across the loreal region. Compared with other races of Kentish Plover, the head pattern of freshly moulted male *seebohmi* is dull, subdued, poorly marked and without the warm orange and cinnamon tones to the crown, resulting in an appearance that is like a washed-out version of the northern, migratory races. Female *seebohmi* are similar in size to the males, but closely resemble female Kentish Plovers of the nominate form, and so are darker than 'Swinhoe's *dealbatus*'.

Javan Plover

The appearance of Javan Plover is poorly documented, but observations of breeding birds at the Muara Angke reserve, on the western outskirts of Jakarta, Java, have established that their appearance is quite different to that of 'Swinhoe's *dealbatus*'. In size, it is relatively small and compact, and comparable in size to *C. a. seebohmi*. The upperparts vary from dark brown to a paler dull sandy-brown, similar in colour to 'eastern' Kentish Plover, while males show a warm rufescent-brown wash to the lower crown and rear of the supercilium, which extends back over the ear-coverts where it drops slightly. Importantly, the lores are entirely dark, the patches at the sides of the breast are rufescent-brown, not black, and the legs are dull greenish-grey.

Malaysian Plover

Malaysian Plover is a relatively small *Charadrius* plover that overlaps in size with *C. a. seebohmi* and Javan Plover, but is significantly smaller than 'Swinhoe's *dealbatus*' and the migratory races of Kentish Plover (Table 1). Bill coloration and structure and upperwing pattern are strikingly similar to 'Swinhoe's *dealbatus*'. It also shares the dark fore-crown bar and bright orange crown, and some males show entirely white and unmarked lores, and appear uncannily like some male 'Swinhoe's *dealbatus*'. In most, however, a narrow line of dark feathering extends from the eye to the bill-base. Male Malaysian Plover always shows a dark collar across the upper mantle, below the white collar, that joins with the dark patches at the sides of the breast. These patches are usually longer and deeper on Malaysian Plover, and on some individuals can almost meet across the breast. In addition, although the upperpart feathering of both sexes of Malaysian Plover is paler than shown by *dealbatus* and Kentish Plover, the feathers on the mantle and scapulars show a broad, pale fringe with a darker centre and a conspicuous dark shaft-streak, so the upperparts lack the relatively uniform appearance of *dealbatus*. Females more closely resemble female *dealbatus*, but the smaller size and pattern to the mantle and scapulars remain constant differences. There is a difference in the crown coloration between female Malaysian Plover and female 'Swinhoe's *dealbatus*'. Typically, female Malaysian shows orange on the fore, rear and sides of the crown, while the centre is sandy-brown, while female 'Swinhoe's *dealbatus*' shows an even sandy or orange-brown colour.

DISTRIBUTION AND STATUS

Accounts from the early decades of the twentieth century described 'Swinhoe's *dealbatus*' as a common breeding bird along the coast of eastern China from Hainan north to Chihli [Hebei province]. But this statement is confused by the belief at that time that all Kentish Plovers breeding in coastal China were *dealbatus*, and not just those along the south coast of China. For example, La Touche (1931–1934) described *dealbatus* as breeding 'in large numbers both on the coast of South-East China and on those of Shantung [Shandong province] and Chihli [Hebei province]'. He also describes finding nests at Swatow Bay [Shantou, Guangdong province], and near Amoy (within the type locality of *dealbatus*) but commented that he did not find any nests at Chinwangtao (Qinhuangdao, Hebei province), although he had no doubt that it bred there, as

Wilder and Hubbard (1924) had described it as being abundant at Peitaiho [Beidaihe, Hebei province] from early April to early September. It is possible that La Touche's description is an amalgamation of northern and southern Chinese breeding birds, passage migrants and wintering birds, based on the misconception of the appearance of *dealbatus* and erroneous distribution comments by Hartert and Jackson (1915), which included Taiwan, the Ryukyu Islands and southern Japan north to Honshu within its range.

An earlier account by Jones (1911) described Kentish Plover as 'one of the commonest breeding birds on the sandy wastes which border the Yellow Sea and Gulf of Pechili [Gulf of Bohai] in so many parts of Shantung Promontory'. Jones clearly assumed these northern breeders to be the same birds which La Touche found breeding in Swatow, but he did not provide a description of the birds he saw. Crucially, however, he did include the comment that all Kentish Plovers here have black legs and none was seen with pale legs. This strongly suggests that the birds Jones was observing were 'eastern' Kentish Plovers rather than 'Swinhoe's *dealbatus*'.

Outside the breeding season Swinhoe considered *dealbatus* to be resident in south China, although there is little evidence to support this. In fact, the only report from south China to date outside the breeding season relates to a female mentioned by Vaughan and Jones (1913), who stated that one was obtained on mudflats at Macao [Macao, China] on 30 January 1906, but provided no supporting details. However, what is presumably this specimen is held in NHM (BMNH 1910.5.2.57) and is clearly referable to 'Swinhoe's *dealbatus*'.

An unsubstantiated report was included in Seebohm (1893), who referred to a female shot at Nagomagiri, Choda, Okinawa in the Ryukyu Islands, Japan, on 9 February that showed 'very pale legs'. Based on this single character, he considered this bird belonged with the Chinese race *Charadrius cantianus dealbatus*. But without additional supporting evidence, there is nothing here to suggest that this was anything other than a Kentish Plover with unusually pale legs. In fact, a female Kentish Plover, also with pale legs that may possibly resemble Seebohm's bird, was photographed at Okinawa on 20 March 2002, and can be seen at <http://homepage2.nifty.com/stints/ploveretc/kentishplv-awC.html>

All specimens of Kentish Plover that we have examined from northern China, Taiwan and Japan, together with photographs of breeding birds taken in these countries clearly establishes them as Kentish Plovers. While it is possible, even likely, that 'Swinhoe's *dealbatus*' bred to the north of Fujian province, we have not seen any evidence to support this. Outside the breeding season, it is generally believed that *dealbatus* ranges widely throughout coastal East and South-East Asia. However, examination of specimens and photographs from this region clearly shows that all are Kentish Plovers, with the exception of those listed below and in Appendix 1.

With such apparent confusion in the historical literature and museum specimens, it is unwise to assume that any published distribution data relating to the range of 'Swinhoe's *dealbatus*' can be accurate unless supported by specimens or photographs. In an attempt to establish the true distribution, all specimens of Kentish Plover from eastern Asia held at NHM, Tring, and the Raffles Collection, University of Singapore, were examined.

Although most were labelled *dealbatus*, the vast majority were found to be 'eastern' Kentish Plovers. Only those supported by specimens, photographs, field notes and sketches are included in the country summaries below. Appendix 1 details the location of all specimens which have been identified as 'Swinhoe's *dealbatus*', and these are shown in Figure 1.

In an attempt to gather additional distributional data, Bakewell and Kennerley (2007) published a photo-essay on the *Surfbirds* website (<http://www.surfbirds.com/Features/plovers1108/malayplovers.html>). In addition to bringing these birds to the attention of a larger audience, this article included a review and comparison of those characters considered to be most useful when separating 'Swinhoe's *dealbatus*' from Kentish Plover. After publication, several additional reports were received involving birds seen and photographed in China, Vietnam, Thailand and Singapore. These, together with specimens, form the basis of the individual country summaries below.

China

Specimens examined are dated from the period spanning April to July, which would be the likely breeding season. These include 18 from Amoy [Xiamen, Fujian province], one from Swatow [Shantou, Guangdong province], nine from Kouang-Tcheou-Wan [Zhanjiang, Guangxi province], plus four birds collected on Hainan in March, which could also be breeding birds. In addition, there is the specimen from Macao [Macao] dated 30 January 1906, representing the only winter record from China. Recent reports from China depict what appears to be a worn adult, photographed at Sanya, at the southern tip of Hainan, on 12 July 2007 (see <http://www.wwfchina.org/birdgallery/showpic.shtm?id=41638> and <http://www.wwfchina.org/birdgallery/showpic.shtm?id=41639>),

while J. Wilkins (*in litt.* 2008) reported two birds at Sanya on 19 May 2000. In addition, a photograph of a male at Beihai, Guangxi, on 25 May 2005, appears at <http://www.wwfchina.org/birdgallery/showpic.shtm?id=9234>.

Currently, Xiamen marks the northern limit of the known range of 'Swinhoe's *dealbatus*', although there are no recent reports from there. There are also no reports from Hong Kong, which lies approximately 500 km to the south-west of Xiamen. Migrant shorebirds have been studied extensively in Hong Kong since the late 1970s, and the lack of recent reports suggests few, if any, occur there.

Vietnam

Four specimens collected at Thuan An, Hué, Central Annam, Vietnam, during the Third Expedition to French Indo-China, in September and November 1925, and April 1926 (Delacour *et al.* 1928), are housed in the collection at NHM. In addition, photographs show at least seven birds at Phan Thiet, South Annam, on 27 December 2005 (B. Anderson *in litt.* 2007) and at least nine were photographed there on 20 November 2007 (H. Stamm *in litt.* 2008).

Thailand

We have examined one specimen from Thailand, collected at Khao Sam Roi Yot, Prachuap Khiri Khan, on 8 November 1932 and housed in the USNM collection, Washington DC. Following the publication of Bakewell and Kennerley (2007), several reports supported by photographic evidence were received. These include a male photographed at Nopparat Thara Beach, north-west of Krabi, Krabi province, on 17 February 2003 (P. Backman *in litt.* 2008), followed by a flock of seven, photographed at Karon Beach, Phuket, 15 November 2003 (P. Lehikoinen *in litt.* 2008). In the Gulf of Thailand, several reports have come from Laem Phak Bia, Phetchaburi,

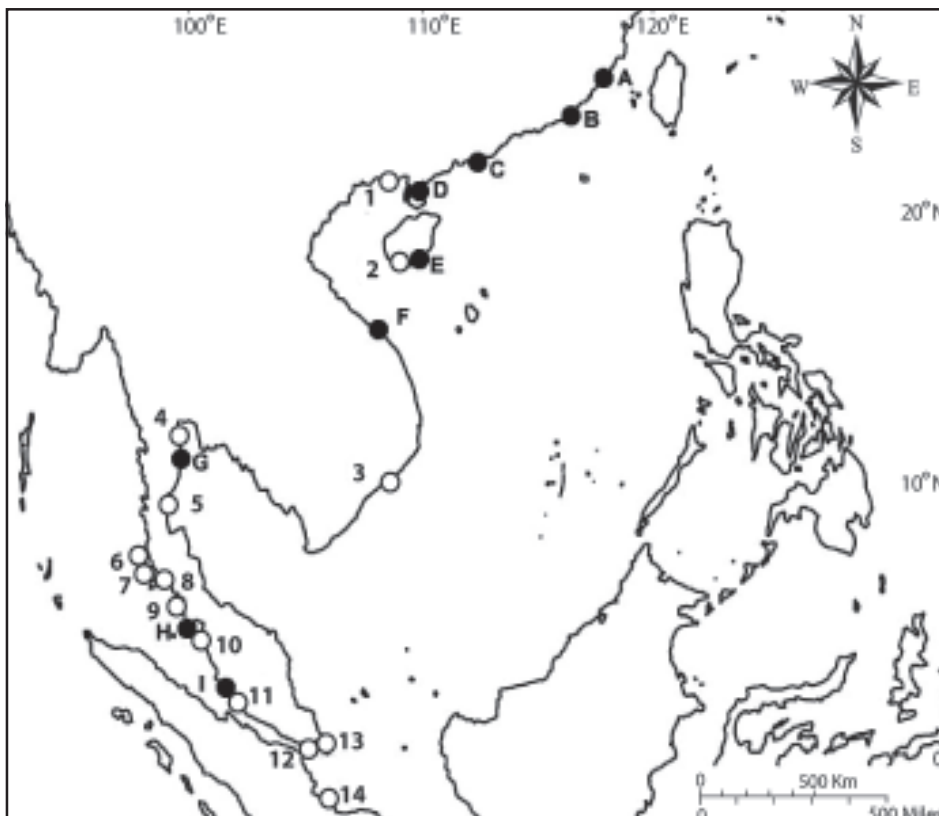


Figure 1. Map showing location of all documented occurrences of 'Swinhoe's *dealbatus*' *Charadrius alexandrinus dealbatus* up to April 2008.

Documented sightings (open circles) have been reported from the following locations: 1 Beihai, Guangxi province, China; 2 Sanya, Hainan, China; 3 Phan Thiet, Vietnam; 4 Laem Phak Bia, Phetchaburi, Thailand; 5 Bang Berd Bay, Patiu district, Chumphon, Thailand; 6 Thai Muang Beach, near Phang Nga, Thailand; 7 Karon Beach, Phuket, Thailand; 8 Nopparat Thara Beach, Krabi, Thailand; 9 Ko Libong, Trang, Thailand; 10 Tanjung Tokong, Penang, Malaysia; 11 Kapar Power Station, Selangor, Malaysia; 12 Tuas, Singapore; 13 Changi Cove, Singapore. 14 Cemara, Jambi province, Sumatra. **Specimen records** (solid circles) have come from: A Amoy [Xiamen, Fujian Province, China]; B Swatow [Shantou, Guangdong province, China]; C Macao; D Kouang-Tcheou-Wan [Zhanjiang, Guangxi province, China]; E Hainan, China; F Thuan An, Hue, Vietnam; G Khao Sam Roi Yot, Prachuap Khiri Khan, Thailand; H Pulau Langkawi, Malaysia; I Batu, Selangor, Malaysia.

where R. Wardle (*in litt.* 2008) photographed a male on 29 January 2004. Next came a male in March 2007 (G. Bakker and R. van der Vliet *in litt.* 2007), followed by one, supported by photographs, from S. Daengphayon and Somchai Nimnuan on 15 December 2007. Up to three birds remained here until February 2008 (P. Ericsson, PDR, Pinit Saengkaew, K. Sutasha, C.-J. Svensson, C. Thomas and D. Walsh *in litt.* 2008) and at least one was still present on 23 March (V. Picken *in litt.* 2008). Other recent sightings from Thailand include one at Bang Berd Bay, Patiu district, Chumphon, east coast of peninsular Thailand, on 26 January 2008 (Smith Sutibut *in litt.* 2008), four at Thai Muang Beach, Phang Nga area, south Thailand on 22 February 2008 (C. Thomas *in litt.* 2008), a male at Nopparat Thara Beach, Krabi, on 26 and 29 March 2008 (J. Buckens *in litt.* 2008) and a male at Ko Libong, Trang, on 6 and 7 April 2008 (Somchai Nimnuan and PDR).

Malaysia

We have located five specimens from Malaysia. Three specimens, collected from Pulau Langkawi in the extreme north-west of the country are housed in USNM, Washington DC. Two were collected here on 1 December 1899 and the third was collected on 14 November 1963. The remaining two specimens are held in the Raffles Collection at the University of Singapore, and were collected on 26 November 1906, and labelled Batu, Selangor, Malaya. Although the location of Batu is uncertain, D. Wells (*in litt.* 2007) comments that Batu refers to a 'rock' or 'milestone', and he had also attempted to locate this site. Although he could not be certain, he considers it most likely to refer to a location on the northern Selangor coast, to the seaward side of Sungei Buloh, and to the north of Jeram beach, where there is a large limestone outcrop.

The first recent record, supported by a field sketch, was made by C. Rose who watched a bird in the roost at Kapar Power Station, Selangor, in March 1993. Observations by DNB during winter 2006–2007, supported by photographs, established that a flock of up to 12 birds wintered on an extensive land reclamation site at Tanjung Tokong, Pulau Pinang. The first bird was noted on 11 October 2006, after which numbers increased to a peak of 12 in December, followed by a decline to five in February, and the last bird was seen on 28 March 2007. The first returning bird was located on 21 September 2007, and up to six were present in January 2008.

Singapore

Up to four birds which spent the winter on the extensive land reclamation site at Tuas, at the western extremity of Singapore bordering the Straits of Malacca, from late October 1993 to 14 March 1994, were described and sketched by PRK. There were no further reports from Singapore until J. Cheah (*in litt.* 2007) photographed two males at Changi Cove, on 12 February 2007, and posted images on his website (http://www.pbase.com/wkcheah/kentish_plover). A visit to this site on 8 February 2008 revealed eight birds, and at least 14 there on 17 February, falling to three on 13 March and just one on 22 March 2008 (M. Kennewell, S. Cockayne and Wang Luan Keng *in litt.* 2008).

Sumatra, Indonesia

A male was trapped at Cemara, Jambi province, Sumatra on 12 February 2008. (I. Londo/WCS *in litt.* 2008).

Breeding and wintering ranges

Based on the established identifications above, the breeding range of 'Swinhoe's *dealbatus*' remains uncertain. There is no evidence to suggest that breeding occurs outside the range given by Swinhoe, i.e. the south coast of China including Hainan. But with no evidence of passage through Hong Kong, breeding may no longer occur in Guangdong or Fujian provinces. There is no evidence to suggest that 'Swinhoe's *dealbatus*' has occurred in Taiwan and observers there are unfamiliar with it (S. Liao verbally 2007), *contra* Swinhoe (1863) who included Formosa [Taiwan] within the range of *dealbatus*.

Outside the breeding season, recent photographic evidence has established that 'Swinhoe's *dealbatus*' winters locally along the coast from southern Vietnam, through the Gulf of Thailand and south along the west coast of the Malay Peninsula to Singapore, and the east coast of Sumatra, Indonesia. Undiscovered wintering sites may exist along the sandier east coast of the Thai-Malay Peninsula, and the underwatched coasts of Vietnam and Sumatra may hold larger wintering populations.

HABITAT

Outside the breeding season, 'Swinhoe's *dealbatus*' appears to show a distinct preference for coastal sites with an open aspect, which it requires for roosting and feeding. Natural sites such as the sandy spit at Laem Phak Bia, Thailand, are favoured for both roosting and feeding, and birds are present there throughout the day. Land reclamation sites with a sandy substrate and little or no emergent vegetation, such as Tuas and Changi Cove, Singapore, are presumably unsuitable for feeding and are used for roosting during the day. However, these birds depart the site at dusk and return the following morning, presumably to visit unknown feeding sites (DNB pers. obs.). At Tanjung Tokong, Penang, Malaysia, the preferred habitat was a fine sandy substrate, almost completely devoid of vegetation, which was used as a high tide roost for shorebirds. When not roosting, however, these birds fed on the adjacent intertidal mudflats.

It seems likely that land reclamation sites represent a suboptimal habitat, and observations in Thailand and Malaysia show that 'Swinhoe's *dealbatus*' prefers sand beaches to mudflats.

BEHAVIOUR AND ECOLOGY

At both Tanjung Tokong and Tuas, *dealbatus* usually associated with Kentish Plovers when feeding and roosting, although they tended to feed on harder, sandier substrates, while Kentish Plovers would feed in softer mud along tidal channels. During low tide at Tanjung Tokong, the mixed plover flock would feed on the tideline, on or near an isolated sandbar in the middle of extensive mudflats. On occasion, they were seen to hunt prey (possibly crabs) in a manner typical of Greater Sand Plover *C. leschenaultii*: head lowered, dashing rapidly across the sand to seize the prey before it could retreat into its burrow. P. Ericsson (*in litt.* 2008) also commented that at Laem Phak Bia, Thailand, 'Swinhoe's *dealbatus*' seem to prefer the more isolated sandy beaches also frequented by Malaysian Plovers. One male observed for over an hour

was very aggressive and would promptly chase off any Kentish Plover or Sanderling *Calidris alba* which approached it too closely. When feeding, both 'Swinhoe's *dealbatus*' and Malaysian Plover are more active than Kentish Plover, and often run almost non-stop while foraging along the tide edge, where they have been observed chasing down and eating small crabs (M. Andrews *in litt.* 2008).

Differences in feeding posture may also be significant. When feeding, Kentish Plover assumes a rather horizontal stance, with the head held hunched into the 'shoulders'. In contrast, 'Swinhoe's *dealbatus*' often adopts a slightly more upright stance, with more of the neck visible.

On the rising tide, feeding shorebirds at Tanjung Tokong congregated in a loose mixed flock, prior to roosting. As the mudflats were covered, the flock selected the same roost site each day, with 'Swinhoe's *dealbatus*' always preferring open areas devoid of vegetation and with a sandier, drier substrate. Roosting occurred both on the foreshore and on bare reclaimed land at the edge of a construction site. When roosting, *dealbatus* showed a propensity to sit on the sand, legs folded beneath the body and head held low. Frequently, they selected an area with larger stones and hollows into which they could crouch and which would conceal them wholly or in part. In contrast, while some Kentish Plovers also roosted in this manner, they were as likely to roost standing up. When disturbed at the roost, *dealbatus* appeared more nervous and tended to run away fast from the disturbance, whereas Kentish would adopt a peculiar robotic mincing gait, not retreating as rapidly as 'Swinhoe's *dealbatus*'.

VOCALISATIONS

Our observations suggested that *dealbatus* is largely silent during the non-breeding months. Three birds disturbed by DNB on 19 January 2007, gave an alarm call as they took flight, described as 'a high-pitched *tip*, sometimes *tee*', very similar to that of Kentish Plover. All vocalisations heard were similar to those of Kentish Plovers and markedly distinct from the more trilling calls of Malaysian Plover. Like other *Charadrius*, it is likely that they will have a 'display song' which is given on the breeding grounds, but this has not yet been recorded.

CONSERVATION

With all recent reports coming from outside the breeding season, it is unclear whether 'Swinhoe's *dealbatus*' faces any immediate threats. With many coastal land reclamation schemes in Asia, there would appear to be a plentiful supply of suitable, albeit temporary, wintering sites. Circumstances in the breeding areas are unknown. But with massive coastal degradation occurring in coastal southern China, it seems inevitable that breeding areas must have been lost. Furthermore, if beaches are the preferred habitat during the breeding season, these will come under increasing pressure from China's developing tourist infrastructure, particularly in Hainan and Guangxi provinces. The rapid and on-going destruction of much of the coast of southern China does not bode well for the long-term future.

CONCLUDING REMARKS

Few birds can have had such a confused history as *Aegialites* [*Charadrius*] *dealbatus*. It is remarkable that this rather distinctive plover has been overlooked for so long in such a well-watched region. Both Singapore and Malaysia have a long history and strong tradition of bird-related research, extending back almost two centuries to the founding of Singapore. Similarly, it is surprising that this plover has been overlooked for so long in Thailand, also a centre for bird research and a popular destination for visiting ornithologists and birders since the 1970s. Undoubtedly, the close resemblance of 'Swinhoe's *dealbatus*' to 'eastern' Kentish Plover in non-breeding plumage, and passing similarity to Malaysian Plover when in breeding plumage, has contributed to this confusion and masked its true status. Furthermore, its omission from modern field guides has not encouraged observers to question the appearance of those 'funny' Kentish Plovers they have encountered.

What has become apparent from the above discussion is that the taxon referred to here as 'Swinhoe's *dealbatus*' has completely disappeared from the modern ornithological literature, and its place taken by 'eastern' Kentish Plover. Consequently, the name *dealbatus* has been erroneously applied to 'eastern' Kentish Plover by almost all authorities and authors throughout much of the twentieth century. Currently not a single taxonomic authority, handbook or field guide recognises the distinctive appearance of 'Swinhoe's *dealbatus*'.

Based on comparisons of morphological, structural and behavioural differences, 'Swinhoe's *dealbatus*' is consistently diagnosable from Kentish and Malaysian Plovers at all ages and in all plumages. At present, the breeding ranges of 'Swinhoe's *dealbatus*' and 'eastern' Kentish Plover in eastern China are believed to be allopatric. However, contemporary accounts, including that of La Touche (1931–1934), allude to the possibility that the breeding ranges may have overlapped in north-east China, and further work is required to establish whether this is the case. Research to investigate the phylogenetic relationships of 'Swinhoe's *dealbatus*' with Kentish and Malaysian Plovers is currently proceeding and the results will appear shortly.

It is hoped that the publication of this paper will rectify these taxonomic, historical and nomenclatural errors and reinstate 'Swinhoe's *dealbatus*' as the distinctive taxon described here. If 'Swinhoe's *dealbatus*' proves to be a valid species, it is recommended that the name *Charadrius dealbatus* be reinstated with the English name White-faced Plover applied for popular usage. Furthermore, it is also recommended that the available name *Charadrius alexandrinus nihonensis* be reinstated for the large-billed 'eastern' Kentish Plovers breeding in northern Japan, Sakhalin and the southern Kuril Islands.

Finally, we repeat the appeal in Bakewell and Kennerley (2007, 2008) for anyone with past or future records and photographic evidence of 'Swinhoe's *dealbatus*' to contact us, particularly from the period spanning March–July, and from anywhere in China.

Note added in proof

On 7–9 June 2008, members from the Hong Kong and Fujian Bird Watching Societies visited the Minjiang River mouth near Fuzhou, Fujian province, China, where

several pairs of 'Swinhoe's *dealbatus*' were found to be breeding (M. and P. Wong, and K. C. Lee *in litt.* 2008).

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In addition, we are extremely grateful to the many people mentioned below who provided details of their observations, together with comments and opinions, in response to our request for information, with apologies to anyone inadvertently omitted. **Singapore:** Jonathan Cheah provided details of his February 2007 sighting. Wang Luan Keng (NUS), Ramakrishnan and Lin Yangchen (National Parks, Singapore), together with Martin Kennewell and Simon Cockayne, supplied details of sightings made at Changi Cove, and are also thanked for their efforts to try to trap birds there. **Malaysia:** Chris Rose provided details and a sketch of a bird at Kapar Power Station Ash Lagoons. Associate Professor Shahrul Anuar bin Mohd Sah, School of Biological Sciences, Universiti Sains Malaysia, M. A. Muin, Unisains, Universiti Sains Malaysia, and Hasnan Yusop, Director, Department of Wildlife and National Parks, Pulau Pinang, are thanked for their help in attempts to trap the birds at Tanjung Tokong. **Indonesia:** Iwan Londo/WCS provided details and photographs of a male trapped at Cemara, Jambi province, Sumatra. **Thailand:** Peter Backman, Garry Bakker, Johan Buckens, Suchart Daengpayon, Peter Ericsson, Petteri Lehikoinen, Somchai Nimnuan, Verity Picken, Pinit Saengkaew, Smith Sutibut, Carl-Johan Svensson, Craig Thomas, Rinse van der Vliet, David Walsh and Robert Wardle provided details of their sightings, some dating back to 2003. **Vietnam:** We thank Bjorn Anderson and Hanno Stamm for providing details of sightings at Phan Thiet. **China:** John Wilkins supplied details of his sighting at Sanya, Hainan. Bjorn Anderson and Jesper Hornskov provided links to websites which included photographs of Kentish Plovers, including breeding birds in China, and also shared their opinions on these birds. We also thank an anonymous correspondent in China who provided details of a bird photographed

at Beihai, Guangxi province. **Others:** Ed Keeble and Frederic Jiguet commented on, and provided links to images of pale Kentish Plovers photographed in the Middle East.

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APPENDIX 1

List of all known specimens of *Charadrius [alexandrinus] dealbatus*. Examined specimens are at NHM, Tring; USNM, Washington; the National Museum of Natural History (RMNM), Leiden, and the Raffles Museum of Biodiversity Research at the National University of Singapore, and identification verified. All locations denoted appear as written on the original collection labels. Note that location names have changed as follows: Amoy [Xiamen, Fujian province, China]; Swatow [Shantou, Guangdong province, China]; Kouang-Tcheou-Wan [Zhanjiang, Guangxi province, China]; Sam Roi Yot, Siam [Khao Sam Roi Yot, Prachuap Khiri Khan, Thailand]; Pulo Lankawi [Pulau Langkawi, Malaysia].

Specimen No.	Collection	Location	Date	Sex/Age	Collector(s)
16D	NHM, Tring	Amoy	1861	male	Swinhoe
91.10.1.692	NHM, Tring	Amoy	June 1866	male	Swinhoe
91.10.1.693	NHM, Tring	Amoy	August 1861	male	Swinhoe
93.1.25.193	NHM, Tring	Amoy	May 1861	male	Swinhoe
93.1.25.194	NHM, Tring	Amoy	May 1861	female	Swinhoe
96.7.1.559	NHM, Tring	Amoy	May 1861	male	Swinhoe
96.7.1.560	NHM, Tring	Amoy	May 1861	male	Swinhoe
96.7.1.561	NHM, Tring	Amoy	June 1866	male	Swinhoe
96.7.1.562	NHM, Tring	Amoy	June 1866	male	Swinhoe
96.7.1.567	NHM, Tring	Amoy	July 1866	female	Swinhoe
96.7.1.568	NHM, Tring	Amoy	4 July 1866	male	Swinhoe
96.7.1.569	NHM, Tring	Amoy	4 July 1866	female	Swinhoe
96.7.1.573	NHM, Tring	Hainan	March 1868	male	Swinhoe
96.7.1.574	NHM, Tring	Hainan	March 1868	male	Swinhoe
96.7.1.575	NHM, Tring	Hainan	March 1868	male	Swinhoe
1908.1.8.222	NHM, Tring	Swatow	2 Jul 1888	female	Styan
1910.5.2.57	NHM, Tring	Macau, China	30 Jan 1906	female	Vaughan
1926.9.8.203	NHM, Tring	Thuan An, Hue, Vietnam	22 Sep 1925	juvenile	Delacour and Lowe
1926.9.8.204	NHM, Tring	Thuan An, Hue, Vietnam	25 Nov 1925	juvenile	Delacour and Lowe
1926.9.8.212	NHM, Tring	Thuan An, Hue, Vietnam	22 Sep 1925	male	Delacour and Lowe
1927.6.5.256	NHM, Tring	Thuan An, Hue, Vietnam	11 Apr 1926	male	Delacour and Lowe
1935.10.23.74	NHM, Tring	Kouang-Tcheou-Wan	17 May 1932	female	Delacour and Jabouille
1935.10.23.75	NHM, Tring	Kouang-Tcheou-Wan	17 May 1932	female	Delacour and Jabouille
1935.10.23.76	NHM, Tring	Kouang-Tcheou-Wan	18 May 1932	male	Delacour and Jabouille
1935.10.23.77	NHM, Tring	Kouang-Tcheou-Wan	25 May 1932	female	Delacour and Jabouille
1935.10.23.78	NHM, Tring	Kouang-Tcheou-Wan	18 May 1932	male	Delacour and Jabouille
1935.10.23.79	NHM, Tring	Kouang-Tcheou-Wan	29 Jun 1932	male	Delacour and Jabouille
1935.10.23.80	NHM, Tring	Kouang-Tcheou-Wan	01 Jul 1932	juvenile	Delacour and Jabouille
1935.10.23.81	NHM, Tring	Kouang-Tcheou-Wan	03 Jul 1932	female	Delacour and Jabouille
1935.10.23.238	NHM, Tring	Kouang-Tcheou-Wan	27 Jul 1933	female	Delacour and Jabouille
107075	USNM	Amoy	Jun 1866	male	Swinhoe
113342	USNM	Hainan	Mar 1868	unknown	Swinhoe
113345	USNM	Amoy	4 Jul 1866	female?	Swinhoe
113346	USNM	Amoy	4 Jul 1866	male?	Swinhoe
113347	USNM	Amoy	1861	unknown	Swinhoe
332671	USNM	Sam Roi Yot, Siam	8 Nov 1932	male	Smith

Specimen No.	Collection	Location	Date	Sex/Age	Collector(s)
172915	USNM	Pulo Lankawi	1 Dec 1899	female	Abbott
172917	USNM	Pulo Lankawi	1 Dec 1899	unknown	Abbott
486810	USNM	Pulau Langkawi, Malaysia	14 Nov 1963	female	Gill
155918	RMNH	Amoy	April 1861	female	Swinhoe
155919	RMNH	Amoy	April 1861	female	Swinhoe
ZRC 3.2540	Raffles	Batu, Selangor, Malaya	26 Nov 1906	male	unknown
ZRC 3.2541	Raffles	Batu, Selangor, Malaya	26 Nov 1906	male	unknown

APPENDIX 2

List of paralectotypes of *Aegialites* [*Charadrius*] *dealbatus* held at NHM, Tring; USNM, Washington DC, and the National Museum of Natural History (RMNH), Leiden. All specimens were collected by Robert Swinhoe prior to 1870 from the type locality (i.e. 'the South coast of China, including Formosa and Hainan'), and form the basis of his recognition of *Aegialites dealbatus* as a distinct taxon (Swinhoe 1870). The lectotype (BMNH 1896.7.1.559) is marked with an asterisk. Due to past confusion, the taxon *dealbatus* is a composite, comprising both *Aegialites* [*Charadrius*] *dealbatus* and Kentish Plover *C. alexandrinus*. This table distinguishes between those specimens identified as *Aegialites* [*Charadrius*] *dealbatus*, listed here as *dealbatus*; and those identified as 'eastern' Kentish Plover, listed as *alexandrinus*. All locations denoted appear as written on the original collection labels. Note that some location names have changed as follows: Amoy [Xiamen, Fujian province, China]; Taliwan [Dalian Bay, Liaoning province, China]; Takow, Formosa [Kaohsiung, Taiwan]. The location of Oseukeo cannot be traced but may be in Taiwan where Robert Swinhoe lived from 1856 to 1866.

Specimen No.	Location	Date	Sex/Age	Collection	Taxon
16D	Amoy	1861	male	NHM	<i>dealbatus</i>
91.10.1.692	Amoy	Jun. 1866	male	NHM	<i>dealbatus</i>
91.10.1.693	Amoy	Aug. 1861	male	NHM	<i>dealbatus</i>
93.1.25.193	Amoy	May 1861	male	NHM	<i>dealbatus</i>
93.1.25.194	Amoy	May 1861	female	NHM	<i>dealbatus</i>
*96.7.1.559	Amoy	May 1861	male	NHM	<i>dealbatus</i>
96.7.1.560	Amoy	May 1861	male	NHM	<i>dealbatus</i>
96.7.1.561	Amoy	Jun. 1866	male	NHM	<i>dealbatus</i>
96.7.1.562	Amoy	Jun. 1866	male	NHM	<i>dealbatus</i>
96.7.1.567	Amoy	Jul. 1866	female	NHM	<i>dealbatus</i>
96.7.1.568	Amoy	4 Jul. 1866	male	NHM	<i>dealbatus</i>
96.7.1.569	Amoy	4 Jul. 1866	female	NHM	<i>dealbatus</i>
96.7.1.573	Hainan	Mar. 1868	male	NHM	<i>dealbatus</i>
96.7.1.574	Hainan	Mar. 1868	male	NHM	<i>dealbatus</i>
96.7.1.575	Hainan	Mar. 1868	male	NHM	<i>dealbatus</i>
107075	Amoy	Jun. 1866	male	USNM	<i>dealbatus</i>
113342	Hainan	Mar. 1868	unknown	USNM	<i>dealbatus</i>
113345	Amoy	4 Jul. 1866	female?	USNM	<i>dealbatus</i>
113346	Amoy	4 Jul. 1866	male?	USNM	<i>dealbatus</i>
113347	Amoy	1861	unknown	USNM	<i>dealbatus</i>
155918	Amoy	April 1861	female	RMNH	<i>dealbatus</i>
155919	Amoy	April 1861	female	RMNH	<i>dealbatus</i>
4.25	Amoy	1861	male	NHM	<i>alexandrinus</i>
4.3	Amoy	Aug. 1861	male	NHM	<i>alexandrinus</i>
5.55	Amoy	Jan. 1860	male?	NHM	<i>alexandrinus</i>
91.10.1.694	Amoy	1861	unknown	NHM	<i>alexandrinus</i>
91.10.5.157	North Formosa	Mar. 1862	unknown	NHM	<i>alexandrinus</i>
93.1.25.195	Amoy	Oct. 1866	female	NHM	<i>alexandrinus</i>
93.1.25.196	Amoy	Oct. 1866	unknown	NHM	<i>alexandrinus</i>
93.1.25.197	Amoy	Jan. 1867	unknown	NHM	<i>alexandrinus</i>
93.1.25.198	Taliwan	Jul. 1860	juvenile	NHM	<i>alexandrinus</i>
93.1.25.199	South-West Formosa	1861	unknown	NHM	<i>alexandrinus</i>
93.1.25.233	Amoy	Nov. 1866	male?	NHM	<i>alexandrinus</i>
93.1.25.234	Amoy	Nov. 1866	unknown	NHM	<i>alexandrinus</i>
93.1.25.235	Amoy	Nov. 1866	unknown	NHM	<i>alexandrinus</i>
93.1.25.236	South-West Formosa	1861	female	NHM	<i>alexandrinus</i>
96.7.1.558	Oseukeo	14 Nov. 1857	female	NHM	<i>alexandrinus</i>
96.7.1.563	Amoy	Jan. 1860	female	NHM	<i>alexandrinus</i>
96.7.1.564	Amoy	Nov. 1866	unknown	NHM	<i>alexandrinus</i>
96.7.1.566	Amoy	Nov. 1866	unknown	NHM	<i>alexandrinus</i>
96.7.1.570	Amoy	Nov. 1866	unknown	NHM	<i>alexandrinus</i>
96.7.1.572	North Formosa	Mar. 1862	unknown	NHM	<i>alexandrinus</i>
93.1.25.192	Oseukeo	14 Nov. 1857	unknown	NHM	<i>alexandrinus</i>
107076	Amoy	Oct. 1866	unknown	USNM	<i>alexandrinus</i>
113343	Amoy	Oct. 1866	unknown	USNM	<i>alexandrinus</i>
113344	Amoy	Jun. 1866	unknown	USNM	<i>alexandrinus</i>
113348	Amoy	Jan. 1860	unknown	USNM	<i>alexandrinus</i>
113349	Takow, Formosa	Oct. 1865	unknown	USNM	<i>alexandrinus</i>
155916	China	April 1861	female	RMNH	<i>alexandrinus</i>
155917	China	Feb. 1861	unknown	RMNH	<i>alexandrinus</i>