Threatened Birds of Asia:
The BirdLife International Red Data Book

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STYAN'S GRASSHOPPER WARBLER

Locustella pleskei

Critical □ —
Endangered □ —
Vulnerable ■ C1

This species qualifies as Vulnerable because it is inferred to have a small, declining population as a result of wetland destruction in its wintering grounds, compounded by limited habitat loss on some islands where it breeds.

DISTRIBUTION Styan's Grasshopper Warbler (see Remarks 1) is a very local summer visitor to small islands in the extreme south of the Russian Far East, and off Japan and North and South Korea. It is recorded on passage along the coast of eastern China, and presumably winters in coastal wetlands in southern China (see Remarks 2), although the only confirmed records during that season are from Hong Kong.

■ ***RUSSIA*** The species is a very local summer visitor to the extreme south of the Russian Far East, where it has been found nesting on several small islands in Peter the Great bay (all less than 1 km long) but does not breed in apparently suitable habitat on the larger islands in the bay (Nazarov and Shibaev 1983):

■ ***Primorye*** **Klykov island**, fledged broods, end of July 1969, 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983); **Naumov island**, 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983); **Kozlov island**, four collected here and on De-Livron island, May 1914, 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983); **Pakhtusova islands**, adult and fledgling collected, July 1972, at least 16 pairs, 1979 (Nazarov and Shibaev 1983); **Sergeyeva island** (Sergeev island), 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983); **Tsivil'ka island** (Tsivol'ko island), Peter the Great bay, five fledged broods, end of July 1969 (Nazarov and Shibaev 1983); **Krotov island**, 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983); **De-Livrona island**, four collected here and on Kozlov island, May 1914, fledged broods and vacated nests found, July 1979, 30 breeding pairs, 1980 (Nazarov and Shibaev 1983); **Gil'debrandt island**, fledged broods and vacated nests found, July 1979, three breeding pairs, 1980 (Nazarov and Shibaev 1983); **Durnovo island**, fledged broods and vacated nests found, July 1979, 16 breeding pairs, 1980 (Nazarov and Shibaev 1983); **Moresa island** (Moiseva island, Moiseev island), 5–10 breeding pairs, 1981 (Nazarov and Shibaev 1983);

■ ***Sakhalin*** near **Chipezan**, female collected, September c.1908 (Lönnberg 1908 in Dement'ev and Gladkov 1951–1954).

■ ***JAPAN*** The species is a very local, but reasonably common summer visitor to the Izu islands and on small islands off Honshu and north-western Kyushu (Brazil 1991, OSJ 2000), with records (by island and prefecture) as follows:

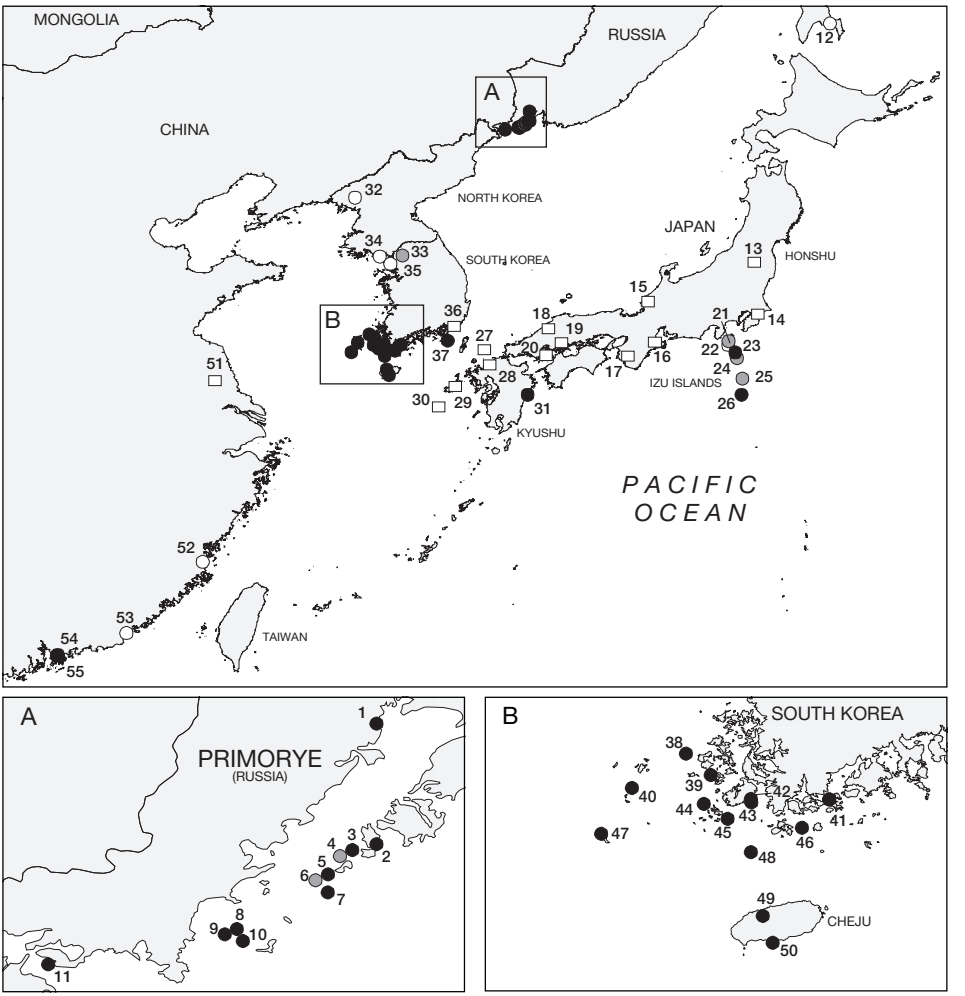
Honshu ■ ***Fukushima*** unspecified localities, passage migrant, undated (OSJ 2000); ■ ***Chiba*** unspecified localities, passage migrant, undated (OSJ 2000); ■ ***Fukui*** unspecified localities, undated (Brazil 1991); ■ ***Mie*** unspecified small islets, breeding, undated (OSJ 2000); ■ ***Wakayama*** unspecified small islets, breeding, undated (OSJ 2000); ■ ***Shimane*** unspecified localities, passage migrant, undated (OSJ 2000); ■ ***Hiroshima*** unspecified localities, passage migrant, undated (OSJ 2000); ■ ***Yamaguchi*** **Hashira-jima** island, breeding, undated (OSJ 2000);

To-shima island, July 1957 (Kuroda 1968 in Higuchi 1973a), old nest thought to belong to this species found, July 1972, one seen, June 1973 (Higuchi 1973a);

Nii-jima island, two collected, breeding, undated (Kuroda 1919 in Austin and Kuroda 1953, Kuroda 1924 in Higuchi 1973a);

Miyake-jima island, breeding behind the small lighthouse, undated (Austin and Kuroda 1953), "common summer visitor, locally abundant", including on Ma Point behind Toga Shrine (Toga Point), May 1953 (Moyer 1957), nests or fledglings found, May–June 1970–1973 (Higuchi 1973a), and present down to 2000 (J. T. Moyer *in litt*. 2000);

Mikura-jima island, observed and considered likely to be breeding, May–June in the years 1970–1973 (Higuchi 1973a);



The distribution of Styan's Grasshopper-warbler *Locustella pleskei*: (1) Klykov island; (2) Naumov island; (3) Kozlov island; (4) Pakhtusova islands; (5) Sergeyeva island; (6) Tsivil'ka island; (7) Krotov island; (8) De-Livrona island; (9) Gil'debrandt island; (10) Durnovo island; (11) Moresa island; (12) Chipezan; (13) Fukushima; (14) Chiba; (15) Fukui; (16) Mie; (17) Wakayama; (18) Shimane; (19) Hiroshima; (20) Hashira-jima; (21) To-shima; (22) Nii-jima; (23) Miyake-jima; (24) Mikura-jima; (25) Hachijo-jima; (26) Aoga-shima; (27) Okino-shima; (28) Shikano-shima; (29) Goto islands; (30) Danjo islands; (31) Biro-jima; (32) North Pyongan; (33) Yangju; (34) Han river; (35) Inchon; (36) Nakdong estuary; (37) Hong islet; (38) Chilbal island; (39) Taenap islet; (40) Huksan island; (41) Taech'ilgi islet; (42) Sosam islet; (43) Taesam islet; (44) Bakekarimen islet; (45) Haenggum islet; (46) Wando-gun; (47) Taegukhul-to; (48) Chuja islands; (49) Kwangnyong-ni; (50) Ho islet; (51) Jiangsu; (52) Min river mouth; (53) Shantou city; (54) Ma Tso Lung; (55) Mai Po.

○ Historical (pre-1950) ◉ Fairly recent (1950–1979) ● Recent (1980–present) □ Undated

Hachijo-jima island, breeding, undated (Kuroda 1919 in Austin and Kuroda 1953), observed and considered likely to be breeding, May–June in the years 1970–1973 (Higuchi 1973a);

Aoga-shima island, nests or nestlings found, May–June in the years 1970–1973, eight seen, June 1973 (Higuchi 1973a), one dead bird, autumn 1996 (Yane 1998);

Kyushu ■ ***Fukuoka*** **Okino-shima** island, breeding, undated (Brazil 1991); **Shikano-shima** island, breeding, undated (OSJ 2000); Tsumura-jima island (untraced), breeding, undated (Brazil 1991); Tsukue-jima island (untraced), breeding, undated (OSJ 2000); ■ ***Nagasaki*** **Goto islands**, passage migrant, undated (OSJ 2000); **Danjo islands**, passage migrant, undated (OSJ 2000); ■ ***Miyazaki*** **Biro-jima** (Birou island), northern coast of Miyazaki prefecture, two nests and two chicks, August 1998 (Nakamura *et al.* 1999);

Yonaguni-jima island (not mapped), several, March–April in 1993 and 1994 (McWhirter *et al.* 1996).

■ ***KOREA*** ■ ***NORTH KOREA*** There is only one record: ■ ***North Pyongan*** unspecified locality, collected, May 1917 (Austin 1948).

■ ***SOUTH KOREA*** Breeding has been recorded on several offshore islets, but there are many more small remote islands with apparently suitable habitat for this species where it is likely to breed (Ishizawa 1933 in Austin 1948, Lee Ki-sup *in litt.* 1999; see Remarks 3). Records (by province) are from: ■ ***Kyonggi and Seoul*** unspecified localities, collected, November 1913, July 1934 (Austin 1948); **Yangju**, one collected, June 1967 (Won 1969 in Gore and Won 1971); **Han river** (Seoul river), heard singing, c.1887 (Taczanowski 1888 in Austin 1948); small islets c.1 km off the coast at **Inchon**, three males collected, July 1887 (Taczanowski 1888 in Austin 1948); Hachibi island (untraced), one adult and three nests collected, June–July 1933 (Ishizawa 1933 in Austin 1948), 13 nests, summer 1933, three nests, summer 1934 (Hashimoto 1934 in Austin 1948); ■ ***South Kyongsang*** **Nakdong estuary**, summer visitor, undated (Woo *et al.* 1997); **Hong islet**, breeding, total of nine seen, 1996, in areas covered with *Carex neurocarpa* (Paek *et al.* 1996), c.10 seen, May–June 1997 (Paek *et al. per* Lee Ki-sup *in litt.* 2000); ■ ***South Cholla*** unspecified localities, eight collected, September–October 1926, September–November 1931 (Austin 1948); **Chilbal island**, several pairs seen and at least one pair bred, summer 1988 (Lee Ki-sup *in litt.* 1999); **Taenap islet** (Taenaptaji islet), three, June 1999 (Wihaeng Heo *in litt.* 2000); **Huksan island**, several seen, summer 1989 (Lee Ki-sup *in litt.* 1999); **Taech'ilgi islet** (Taechilki islet), one, June 1999 (Wihaeng Heo *in litt.* 2000); **Sosam islet** (Sosa islet), one, June 1999 (Wihaeng Heo *in litt.* 2000); **Taesam islet** (Taesa islet), two, June 1999 (Wihaeng Heo *in litt.* 2000); **Bakekarimen islet** (Baekya islet), Jindo-gun, one, August 1998 (Department of Environment 1999); **Haenggum islet**, Jindo-gun, one, August 1998 (Department of Environment 1999); Dariji islet, **Wando-gun**, one, June 1999 (Wihaeng Heo *in litt.* 2000); **Taegukhul-to** (Gugul islet), several pairs seen, summer 1989 (Lee Ki-sup *in litt.* 1999); Shichihatsu island (untraced), three collected, May 1933 (Ishizawa 1933 in Austin 1948); Chongja islet (untraced), one, June 1999 (Wihaeng Heo *in litt.* 2000); Jungchilki islet (untraced), five, June 1999 (Wihaeng Heo *in litt.* 2000); Jangki islet (untraced), five, June 1999 (Wihaeng Heo *in litt.* 2000); Jilma islet (untraced), two, June 1999 (Wihaeng Heo *in litt.* 2000); ■ ***Cheju*** Sasu islet, near the **Chuja islands**, several pairs seen, August 1998 and 1999 (Lee Ki-sup *in litt.* 2000); **Kwangnyong-ni** (Kwangryoung), two, March 1982 (Park and Kim 1983); **Ho islet**, near Seogwipo city, one, c.1990 (Park and Kim 1996).

■ ***CHINA*** The species has been recorded on passage in Jiangsu, Fujian and Guangdong, and likely to winter throughout the coastal regions of Guangdong and probably also Guangxi and Fujian, although the only confirmed winter records are from Hong Kong (Kennerley and Leader 1993):

■ ***MAINLAND CHINA*** ■ ***Jiangsu*** unspecified localities, undated (Cheng Tso-hsin 1987);

■ ***Fujian*** near **Min river mouth**, Fuzhou (Foochow), collected in reedbeds, May 1887 (La Touche 1905, 1925–1934); unspecified locality, October (unspecified year) (Caldwell and Caldwell 1931);

■ ***Guangdong*** **Shantou** (Swatow), found "in numbers" in mangroves, May 1887 (La Touche 1905, 1925–1934).

■ ***HONG KONG*** It is a "very scarce" winter visitor (Leader 1998b) with the following records: **Ma Tso Lung**, one, December 1995 (Leader 1998b); **Mai Po**, one ringed, April 1987 (Jirle and Kjellen 1987), 21 trapped and ringed, late October to early May in the years 1984–1996 (Leader 1998b).

POPULATION This species has been found breeding on a relatively small number of offshore islets, which must together have a small total area, and it has therefore been speculated that "although fairly common in suitable habitats on islets in Japan, the total population must be very small" (OSJ 1974 in Brazil 1991). However, there are many small remote islands off South Korea with apparently suitable habitat for this species where it is likely to breed, but has not yet been recorded (Ishizawa 1933 in Austin 1948, Lee Ki-sup *in litt.* 1999). There may also be small islands off Japan, Russia and North Korea, and possibly north-east China, where breeding populations remain to be discovered. This species appears to occur at high densities in its optimal breeding habitats, although this is difficult to confirm given its skulking habits and relatively quiet song. For example, on Miyake-jima in the Izu islands, Moyer (1957) heard eight birds singing "within fifty feet of me" at one locality. It is therefore possible that the total population could prove to be considerably higher than is currently known, although it seems unlikely to be much more than a few thousand individuals. It is very difficult to judge whether the species is declining (see Threats).

ECOLOGY ***Habitat*** Styan's Grasshopper Warbler inhabits open, wet areas of thick grasses, reeds, or low bushes, almost exclusively on small offshore islets (Austin and Kuroda 1953). On Miyake-jima in Japan, it was "abundant" on a wind-swept knoll covered with dense bamboo grass *Phyllostachys* and stunted ("twisted recumbent") camelia trees, an impenetrable mass of vegetation which was knee-high near the coast and increased to c.5 m tall further inland, the species becoming less common as the height of the foliage increased; high densities also occurred in "fields of thick brush", open pine forest with dense undergrowth of bamboo grass and in the brushy borders of cultivated or grassy fields (Moyer 1957). In South Korea this species breeds in shrubs and tall grasses on small islets both near and far from the mainland and on islands which are close to the mainland (and even those connected to it at low tide) (Taczanowski 1888 in Austin 1948, Lee Ki-sup *in litt.* 1999). The Russian breeding localities are small rocky islets "covered with grass" (Yu. V. Shibaev and N. M. Litvinenko *in litt.* 1999). Typical of *Locustella* warblers, this species's skulking behaviour and habit of keeping close to the ground make it difficult to detect in the field, but during the breeding season the males perch briefly on reed tops to sing (Austin and Kuroda 1953, Leader 1998b).

In the non-breeding range in Hong Kong, all trapped birds have come from either extensive areas of *Phragmites* or from bunds with low shrubs and nearby *Phragmites* (Leader 1998b). Field records have also come from mangroves, where *Kandelia candel* and *Aegiceras corniculatum* predominate, and where the pattern of records indicates that they were probably holding winter territories; one wintering bird was seen in an area of rank grass and water hyacinth *Eichhornia crassipes* with nearby *Phragmites* in a wet area between commercially operated fishponds (Leader 1998b). The species was observed in Guangdong in May "running along the banks of lagoons on the mud under mangrove bushes", and it was collected in reedbeds in Fujian (La Touche 1925–1934).

Food The species presumably eats insects.

Breeding On the Izu islands, the breeding season is from May to June, sometimes into July, and the average clutch-size is four, but ranges from three to six (Austin and Kuroda 1953). On Hachibi island in South Korea, clutches of five and three eggs are found, but the average there is also four; the incubation period is 14 days, and the young leave the nest 13–

15 days after hatching (Hashimoto 1934 in Austin 1948). Nests containing eggs were found there on 16 June and 15 July and a nest containing two chicks and two eggs was found on 17 July; the nests were low (below 2 m) in willow thickets and "shrubbery" (Ishizawa 1933 in Austin 1948). Two nests on Birou island in Miyazaki prefecture were in short grasses, and after fledging two chicks were found on the ground near the nests (Nakamura *et al.* 1999).

Migration In Japan this species occurs on migration from early May to June and from late August to November, with the main route along the Sea of Japan rather than the Pacific coast (Brazil 1991). However, it arrives in the Izu islands in late April and leaves in September or October (Austin and Kuroda 1953). It leaves Hachibi island, a breeding location in South Korea, in early September, latest date 14 September (Hashimoto 1934 in Austin 1948). In Hong Kong it is recorded during the winter months, between the extreme dates of 27 October and 8 May; there are apparent peaks in the numbers of records in spring and autumn, but there may actually be no passage through Hong Kong, because the perceived pattern could result from birds being more active on arrival in autumn and before departure in spring (Leader 1998b). The records in Hong Kong are the only ones from the winter months, "making it possibly the smallest known wintering range of any palearctic migrant" (Leader 1998b). However, Kennerley and Leader (1993) suggested that it is likely that it winters throughout the coastal regions of Guangdong, and probably also Guangxi and Fujian, wherever suitable habitat still exists.

THREATS ***Habitat loss*** *Russia* The only significant threat to this species is likely to be habitat loss. A potential threat to the Russian breeding population is a large-scale development project on the Tumen river ("Project Tumangan"), which could lead to increased human disturbance, pollution, etc. (Yu. V. Shibaev and N. M. Litvinenko *in litt.* 1999). This project could presumably also affect North Korean breeding populations, but it is unclear whether the small islands which this species inhabits would be negatively affected by this project. *Japan* The Tokyo prefecture government (which has authority over the Izu islands) is planning to construct either a camp ground or a marine park at Toga Point on Miyake-jima, which would have a major impact on the habitat of this species there (J. T. Moyer *in litt.* 1996). *China* Development along the coast of mainland China is reducing and degrading wetland habitats, and the Deep Bay reedbeds in Hong Kong are now believed to be one of the largest remaining areas of this habitat type in southern China; this could be affecting the passage and wintering habitats of this species, particularly as it is site-faithful in winter (Leader 1998b), although it does appear adaptable to man-modified wetlands, for example damp grassland between commercially operated fishponds (see Leader 1998b).

Volcanic eruptions on Miyake-jima island (Information in this paragraph is taken entirely from J. T. Moyer *in litt.* 2000). Various eruptions occurred on Miyake-jima in 2000, the most powerful (on a scale not recorded on the island for 2,500 years) in late August, when the summer migrant warblers were still present. The entire island was covered in a very fine, very heavy ash, and foliage-dwelling insects suffered very high mortality. Insectivores such as the Styan's Grasshopper Warbler and Izu Leaf-warbler *Phylloscopus ijimae* (see relevant account) suffered considerably as a result, as all their sites and habitats were badly affected. An area called Hachyodaira, a large flat site within an ancient crater at the summit of the island's mountain, collapsed, with the entire summit, into a 400 m deep new crater, taking with it c.50% of the area occupied by Styan's Grasshopper Warblers on the island. Moreover, August was very dry, and any rain or dew was immediately absorbed into the ash, presumably compounding the mortality in the two warblers. It is doubtful whether more than a few adults would have been able to complete a long-distance migration after such late-summer malnutrition and water deprivation. Although if no further eruptions occur the vegetation might be expected to recover quickly, in October the main crater began emitting deadly gases which, on still days, covered the island and proved toxic to both animals and plants.

MEASURES TAKEN ***Protected areas*** *Japan* In Japan, Styan's Grasshopper Warbler has been recorded in or near to the following protected areas (all information taken from the Environment Agency of Japan's list of prefectural protection areas): in the Izu islands, Nii-jima Protection Area (108 km^2, including a "special protection area" of 2 km^2), Miyake-jima Oyama Protection Area (3 km^2) and Mikura-jima Protection Area (6 km^2, including a "special protection area" of 3 km^2); and in Nagasaki, Danjo-gunto Protection Area and Special Protection Area (4 km^2, on the Danjo islands). *Hong Kong* Some of the areas where this species winters in Hong Kong are protected in the Mai Po Marshes Nature Reserve (4 km^2: MacKinnon *et al.* 1996), and most of its habitats there are inside the Mai Po Marshes Ramsar Site.

Research The long-term ringing programme conducted at Mai Po Nature Reserve by WWF-Hong Kong has added greatly to knowledge of the abundance and winter habitat requirements of this species (Leader 1998b).

MEASURES PROPOSED ***Protected areas*** There appear to be very few records of this species from protected areas, and surveys are required to determine which are the key sites for its conservation, and whether there is a need to establish some of them as new protected areas. *Russia* The boundaries of the Far-Eastern Marine Reserve, which was established in Peter the Great bay in 1978, should be extended to include the islets where this species breeds (Yu. V. Shibaev and N. M. Litvinenko *in litt.* 1999). *Hong Kong* At Mai Po Marshes Nature Reserve protection of the buffer zones around the reserve should be strengthened, and development controlled wherever possible (MacKinnon *et al.* 1996).

Research Much remains to be learned about the distribution, abundance and habitat requirements of this species. Research projects targeted at the following areas would help clarify its threatened status and conservation requirements: (1) systematic surveys to locate additional populations on small islands within the potential breeding range in South Korea, Japan and Russia, and possibly also North Korea and north-east China; (2) ecological studies at selected breeding localities, to determine its population densities and habitat requirements during the breeding season; (3) population studies at localities where it was recorded in the past, to determine whether (and by what agency) there have been changes in numbers and distribution since the original records; (4) systematic surveys to locate populations in wetlands within the presumed winter range in southern coastal provinces of China, probably involving the use of mist-netting; (5) a detailed study of its winter habitat requirements in the Deep Bay area (Mai Po) of Hong Kong and at Ma Tso Lung (as proposed by Leader 1998b).

REMARKS (1) Vaurie (1959) treated Styan's Grasshopper Warbler as conspecific with Middendorff's Grasshopper Warbler *Locustella ochotensis* and Pallas's Grasshopper Warbler *L. certhiola*. Voous (1977) treated it as conspecific with Middendorff's Grasshopper Warbler, but distinct from Pallas's Grasshopper Warbler. Nazarov and Shibaev (1983) treated it as distinct from Middendorff's Grasshopper Warbler, on the basis of differences in morphology, vocalisations and ecology, and this judgement is followed here. The identification of this species and Middendorff's Grasshopper Warbler was discussed in detail by Kennerley and Leader (1993). (2) This species was reported to winter on "islands in the Sunda archipelago" by Dement'ev and Gladkov (1951–1954), presumably in error for Middendorff's Grasshopper Warbler, which does winter in Indonesia. (3) Fennell and King (1964) reported sightings of c.18 *L. ochotensis* / *pleskei* in October 1961 to October 1962, of which several were collected, in marshes and along the edges of mudflats at Seoul, Inchon and Munsan-ni in Kyonggi-do and at the mouth of the Nakdong river near Pusan in Kyongsang Namdo. Two of the specimens collected were confirmed as *L. ochotensis*, but it remains possible that some of the others were *L. pleskei*.