

Birds

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Scientific Name:

Dendrocygna javanica

Common Name:

Lesser Whistling Duck

Order/Family:

Anseriformes: Anatidae

National Status: Endangered (EN). The species is assessed to have met criterion D (small population <200), and nearly met the thresholds for criterion A2 with an inferred decline of -43% over 10 years or three generations.

Habitat and Ecology: An uncommon resident of ponds and marshes with well-vegetated fringes, as well as flooded grasslands. It regularly occurs in reedy ponds at the Singapore Botanic Gardens and Gardens by the Bay. Birds are gregarious and may occur in flocks of more than 50 individuals (e.g. Lorong Halus, Kranji, Western Catchment), although parties of smaller numbers (1–6 individuals, Botanic Gardens) are more typical. The highest number ever recorded was a flock of 107 at Senoko wetlands on 14 June 1987 (SINAV 1:6; MBR 1986–87). Nests are usually built in tree cavities and breeding has been recently documented at several sites.

Photo: Con Foley



Distribution: Much of the Indian subcontinent, to S and SE China, mainland SE Asia and Thai-Malay Peninsula east to the Lesser Sundas.

Threats: Habitat loss and degradation (of marshes, flooded grasslands) are the main threats. Extensive areas of marshy countryside have now been cleared or developed in N, W Singapore. Hybridisation with the introduced Wandering Whistling Duck *D. arcuata* where they co-occur poses another threat.

Scientific Interest and Potential Value: One of two resident breeding species of wildfowl in Singapore, and potentially a good indicator of wetland conditions.

Conservation Measures: Habitat restoration of existing wetlands is expected to benefit the species. This may include improved management of ponds in Kranji marshes and elsewhere.

Scientific Name:

Collocalia affinis

Common Name:

Plume-toed Swiftlet

Order/Family:

Apodiformes: Apodidae

Photo: Lim Kim Chuah



National Status: *ssp. cyanoptila*. Vulnerable (VU). Previously considered Critically Endangered. Likely met Criterion D2 - small population and restricted number of locations of breeding colonies (up to 3 known, and none within a protected area) but not thresholds for CR based on new information. First discovered in Singapore in 1990 in Bukit Timah Nature Reserve. Formerly assessed to be very rare and localised but the recent discovery of at least two breeding colonies in the Bukit Timah area indicates a far larger population, estimated to exceed 200 pairs, and likely others undiscovered (Bukit Batok area).

Habitat and Ecology: A locally common swiftlet, most frequently seen foraging over forest edges, the forest canopy (both secondary and primary forests) and woodland. It regularly occurs around the fringes of the Bukit Timah Nature Reserve and in the Central Catchment forest; there are also records from the Southern Ridges, Bukit Batok and Singapore Botanic Gardens. Outside Singapore, the species is known to

form nesting colonies of several hundred individuals in old buildings, bridges and culverts.

Distribution: Thai-Malay Peninsula, Sumatra, Borneo and intervening islands; also Andaman and Nicobar Islands.

Threats: Habitat loss and degradation of secondary forests and woodland outside the Central forests expected to be a major threat. The known breeding colonies are close to residential areas and are highly susceptible to disturbance.

Scientific Interest and Potential Value: A member of a species complex widely distributed across Southeast Asia and the West Pacific.

Conservation Measures: Breeding colonies need to be better documented and protected as they are vulnerable to disturbance and construction.

Scientific Name:
Apus nipalensis

Common Name:
House Swift

Order/Family:
Apodiformes: Apodidae

National Status: *ssp. subfurcatus*. Vulnerable (VU). Previously unassessed. An inferred decline of -42% over 10 years or three generations based on Annual Bird Census data, and therefore meets thresholds for Criterion A2. A previously common and widely distributed swift across Singapore and several satellite islands.

Habitat and Ecology: A locally uncommon swift, most frequently seen foraging over open country, urban areas, parks and woodland, and less frequently in forested areas. Bucknill & Chasen (1927) noted it to be very numerous and easily the commonest swift but numbers have declined steeply since the early 20th century. Most sightings from 2014 onward

comprised singles or pairs, especially around Seletar Dam-Punggol Barat, Kranji Marshes and the Southern Ridges. The largest congregation in recent years was 40-50 individuals at Singapore Quarry in May 2019. Breeding has been documented but not recently, the best known being the colonies around the General Post Office (now Fullerton Hotel) and the Tanjong Pagar Railway Station. The breeding season is from March to May, July to August and November.

Distribution: Himalayas and S China, east to mainland SE Asia, Greater and Lesser Sundas, the Philippines and Sulawesi.

Photo: Lee Tiah Khoo



Threats: Competition with Germain's swiftlets, which have become more abundant in recent years due to bird nest farming, may have played a role in its decline. Disturbance at nesting colonies (in urban areas) and the decline of aerial insect populations are potential threats.

Scientific Interest and Potential Value: The only local swift that regularly uses old building facades for nesting.

Conservation Measures: None at present besides monitoring. Studies are needed to establish causes of decline.

Scientific Name:

Treron fulvicollis

Common Name:

Cinnamon-headed Green Pigeon

Order/Family:

Columbiformes: Columbidae

National Status: ssp. *fulvicollis*. Endangered (EN). Previously unassessed. The species is expected to meet thresholds for Criterion B and D; it occurs at fewer than 5 locations, and the area of occupancy in Singapore is largely confined to Pulau Ubin, with only sporadic records in the Central Catchment and elsewhere.

Habitat and Ecology: Once considered a rare non-breeding visitor, recent evidence suggests that the species is an uncommon and highly localised resident, given regular documentation from Pulau Ubin. Bucknill & Chasen (1927) considered it an uncommon resident of coastal mangroves in the 1920s. Flocks of up to 20 individuals with immatures have been documented at fruiting trees, including *Ficus* sp. and *Syzygium polyanthum*, associating with Pink-necked *T. vernans* and Thick-billed Green Pigeon *T. curvirostra*. In Singapore, the species occurs mostly in coastal forests and mangroves, but is known to regularly stray into abutting areas of secondary woodland and old plantations.

Distribution: Thai-Malay Peninsula, Sumatra, Borneo, and intervening islands (e.g. Riau, Bangka).

Threats: Habitat loss and degradation of mangroves, secondary forests and woodland outside the Central Catchment forests expected to be a threat.

Photo: Con Foley



Scientific Interest and Potential Value: A species strongly associated with coastal forests, and thus a good indicator of the state of mangroves and adjacent swampy forests. Seed disperser for small fruits.

Conservation Measures: Long-term conservation and management of Pulau Ubin's natural areas will benefit the species.

Scientific Name:
Ptilinopus jambu

Common Name:
Jambu Fruit Dove

Order/Family:
Columbiformes: Columbidae

National Status: Vulnerable (VU). Previously unassessed. The species appears to be largely confined to the Central Catchment forests and is therefore expected to meet Criterion D for a small and restricted population.

Habitat and Ecology: An uncommon resident (and non-breeding visitor) of primary and secondary forests, sporadically entering secondary woodland, mangroves old plantations to feed at fruiting trees, typically among green pigeons. Most records are clustered around Bukit Timah Nature Reserve and the Central Catchment Nature Reserve, and adjoining parks. Bucknill & Chasen (1927) reported that the species was 'not common' and recorded 'several in the mangrove on the Singapore bank of the Johore Strait', but there are no recent records from mangroves. The highest count ever recorded was a flock of 15 seen at a *Ficus benjamina* at Sime Road in March 1988. Breeding has not been reported but

Photo: Con Foley



immatures have been seen Oct-Dec, and behaviour suggestive of nesting has been observed (e.g. birds carrying sticks, fruits).

Distribution: Thai-Malay Peninsula, Sumatra and Borneo. Few records on Java.

Threats: Habitat loss and degradation of secondary forests and woodland around and outside the Central forests is expected to be a threat.

Scientific Interest and Potential Value: Seed disperser for small fruits. Individuals are thought to move long distances.

Conservation Measures: The nature reserves and other forested areas provide habitat. Species may benefit from park connector network to access food resources.

Scientific Name:
Ducula aenea

Common Name:
Green Imperial Pigeon

Order/Family:
Columbiformes: Columbidae

National Status: ssp. *polia*. Endangered (EN). Previously unassessed. The species is expected to meet thresholds under Criterion D for small population (<250 individuals) and very small number of locations in Singapore, mostly in the Pasir Ris-Loyang area, Pulau Ubin and Pulau Tekong.

Photo: Lee Tiah Khee



Habitat and Ecology: Formerly considered a rare non-breeding visitor to the Singapore mainland, it is now a local and uncommon resident in the Changi-Pasir Ris area. There is also a known population in Pulau Ubin and Pulau Tekong. Historically, it was thought to be a resident in small numbers in mangroves and coastal areas (Chasen 1923; Gibson-Hill 1950) but may have been extirpated at some point thereafter as a breeding species. Sightings continued to remain scarce until the early 2010s when a regular flock was observed feeding on ornamental palms at Changi from around March 2013. The species may have recolonised woodland in eastern Singapore from Pulau Tekong or Malaysia in the past two decades as records became increasingly regular from 2015 onwards, including at least one nesting record at Changi Business Park. The highest counts involve flocks of 7–15 birds at Changi and Pasir Ris.

Distribution: Indian Subcontinent and S China, and much of SE Asia east to the Philippines and Sulawesi.

Threats: Habitat loss and degradation of secondary forests and woodland in eastern Singapore (Changi), Pulau Ubin and Pulau Tekong may pose a threat.

Scientific Interest and Potential Value: Probably an important seed disperser for medium to large fruits.

Conservation Measures: A species recovery plan developed by National Parks Board is in place, and tracking studies to understand its movements and ecology are ongoing.

Scientific Name:

Porzana cinerea

Common Name:

White-browed Crake

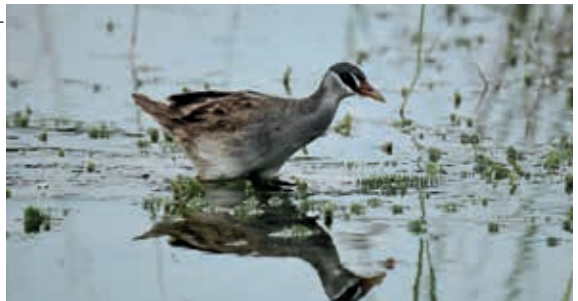
Order/Family:

Ralliformes: Rallidae

National Status: Vulnerable (VU). Previously unassessed. Inferred decline of 33% over 10 years or three generations based on Annual Bird Census data and therefore meets thresholds for Criterion A2.

Habitat and Ecology: An increasingly uncommon resident of freshwater wetlands with floating vegetation, marshes and wet grasslands. Kelham (1883) noted that it was formerly 'very plentiful' but became less common owing to drainage and urban expansion (also Robinson & Chasen 1936). Most recent records are concentrated in the wetlands on the western fringes of the Kranji Reservoir (e.g. Kranji Marshes, Neo Tiew) and adjacent marshy areas in Lim Chu Kang. There are also records from Sungei Buloh Wetland Reserve and the wetlands in Lorong Halus. Breeding has been documented, with the most recent record of two adults with two chicks at Neo Tiew Harvest Lane in Sep 2020.

Photo: Norhafani Abdul Majid



Distribution: Southeast Asia to New Guinea and Australia, east to Micronesian and the Polynesian islands (Samoa).

Threats: Habitat loss and degradation of wet grasslands and marshes. Extensive stands of reed beds and marshy scrub in the Kranji and Neo Tiew area have been cleared in recent years as a result of agricultural expansion.

Scientific Interest and Potential Value: The only member of the genus in Singapore, and a distinctive member of the avian assemblage in dense wetland vegetation.

Conservation Measures: The creation of artificial wetland habitats, such as those in Gardens by the Bay and Sengkang, may benefit the species.

Scientific Name:
Gallicrex cinerea

Common Name:
Watercock

Order/Family:
Ralliformes: Rallidae

National Status: Endangered (EN). Previously unassessed. Inferred declines of 45-57% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data, therefore meeting thresholds for Criterion A2. Steep declines have also been noted in many parts of Southeast and East Asia.

Habitat and Ecology: An uncommon non-breeding visitor (and long-distance migrant) of mostly freshwater wetlands such as marshes, vegetated edges of ponds, lakes and ditches, and wet grassland. Formerly considered to be very common and widespread (e.g. Kelham 1883, Bucknill & Chasen 1936) but clearance of wet marshy area has reduced suitable habitat significantly (Hails 1987b). Records are widely distributed but increasingly scarce, with a particular concentration to the west, e.g. Kranji Marshes, Neo Tiew, Tuas and Bulim, and south (Marina East). High counts involved as many as five birds have been documented (e.g. Bulim on 7 Jan 2018). During the migration period (Dec-Jan), injured, lost or dead individuals are regularly recovered from residential areas.

Photo: Cheng Heng Yee



Male Watercock in flight.

Distribution: Indian Subcontinent, east to E, NE China, Korea and SE Asia. Northern populations winter in SE Asia, east to Sulawesi and Lesser Sundas.

Threats: Habitat loss is the main threat. A substantial number of records of dead, injured or lost birds, all likely casualties of collisions with structures have been documented, and suggests that the species is vulnerable to disorientation when migrating over urban areas.

Scientific Interest and Potential Value: Breeding populations occurring close to Singapore (to north Johor) suggests that records here involve both regional dispersants and long-distance migrants.

Conservation Measures: The creation and management of wetland habitats, such as stands of marshy vegetation in Gardens by the Bay and Kranji Marshes, may benefit the species.

Scientific Name:
Porphyrio poliocephalus

Common Name:
Grey-headed Swampen

Order/Family:
Ralliformes: Rallidae

Photo: Con Foley



National Status: ssp. *viridis*. Critically Endangered (CR). Previously Near Threatened. Estimated declines of 57-61% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data meets thresholds for Criterion A2. However, actual rates of decline are believed to be more severe and the species has completely disappeared from one well-monitored area of Kranji where it was once common.

Habitat and Ecology: A formerly common and localised resident of freshwater wetlands, marshes (and marshy scrub), wet grasslands in western Singapore; very few recent records. In the 1980s, the species colonised and became established in marshland formed by the creation of the Kranji and Poyan Reservoirs (Hails 1988). The well-documented population in Kranji has declined since the mid-2010s although the cause of decline is unclear. High counts of up to 15 individuals were documented from Kranji Marshes in March 1989.

Breeding has been reported, with several records between 1986 and 2017 but none in recent years.

Distribution: Middle East and the Indian Subcontinent, east to mainland SE Asia and the Thai-Malay Peninsula.

Threats: Habitat loss and degradation of wet grasslands and marshes. Extensive stands of reed beds and marshy scrub in the Kranji and Neo Tiew area have been cleared in recent years due to agricultural expansion and land use change.

Scientific Interest and Potential Value: A member of a species complex widely distributed across Southeast Asia, the Indian Subcontinent and the Middle East.

Conservation Measures: Further research to understand the drivers of decline would be needed.

Scientific Name:
Tachybaptus ruficollis

Common Name:
Little Grebe

Order/Family:
Podicipediformes: Podicipedidae

National Status: ssp. *poggei*. Critically Endangered (CR). Meets thresholds for Criterion B and D – the population of the species is unlikely to exceed 50 individuals, and restricted to no more than five sites, only one of which is protected. The species is also estimated to have declined by 48-67% over 10 years or three generations based on Asian Waterbird Census data.

Habitat and Ecology: A highly localised resident of freshwater ponds with vegetated margins, including quarry ponds. This species did not occur historically, and the first known record was from Punggol in Dec 1992. A small population was found in a series of ponds by Sungei Serangoon (Lorong Halus wetlands) and as many as 10 adults have been detected. A separate population of up to 13 birds was found at a quarry pond at Tampines in 1998 but the population was presumably lost when this site was drained. The first breeding record was 3 adults with a juvenile at Lorong

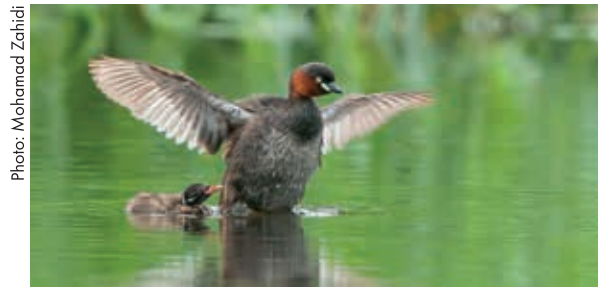


Photo: Mohamad Zahidi

Halus on 25 Oct 1994, with several more thereafter. The documented breeding season is Oct to May and Aug.

Distribution: Widely distributed across Eurasia and Africa: W Europe and Sub-Saharan Africa, Middle East, east to the Indian Subcontinent, much of E, NE China and SE Asia.

Threats: Loss, degradation and disturbance of often ephemeral freshwater pond habitat are the key threats, alongside invasive fish which may increase chick mortality.

Scientific Interest and Potential Value: The only breeding species of grebe in the region.

Conservation Measures: Several quarry ponds are included within protected and managed areas. Further research to understand habitat requirements and the drivers of decline would be needed.

Scientific Name:*Himantopus himantopus***Common Name:**

Black-winged Stilt

Order/Family:

Charadriiformes: Recurvirostridae

National Status: Data Deficient (DD). Previously unassessed. Insufficient data to trigger thresholds for Red List criteria but more research is needed on the breeding population.

Habitat and Ecology: Considered a rare winter visitor and passage migrant to freshwater marshes, ponds and wet grasslands until it was discovered breeding in Pulau Tekong in 2019. The first record for Singapore was in 1918 (Robinson & Chasen 1936; Gibson-Hill 1950). Whilst rare, small groups or individuals have been sporadically found in wetlands across the country during migratory periods, with recent documentation from Jurong Lake Gardens, Sungei Buloh, Marina East and Tuas South, and are presumably from migratory populations. Two chicks seen on 27 and 29 Jul 2019, together with several adults on Pulau Tekong provided definitive proof of breeding and may have involved recent colonisation with source populations from E Johor. The birds also interacted with nesting Pied Stilts *H.*

Photo: Norhafani Abdul Majid



leucocephalus in the vicinity. Both species have recently expanded their breeding range in Malaysia.

Distribution: Breeds widely across Eurasia and Africa. Northern populations winter in N Africa and the Middle East, Indian Subcontinent, east to S China and SE Asia.

Threats: Habitat loss and degradation of wet grasslands and marshes. However, the species is able to utilise ephemeral habitat such as vegetated ponds formed on newly reclaimed land.

Scientific Interest and Potential Value: A member of a species complex closely related to Pied Stilt, with which extensive hybridisation has been documented.

Conservation Measures: Further surveys needed to establish the size of the breeding population on Pulau Tekong.

Scientific Name:*Pluvialis fulva***Common Name:**

Pacific Golden Plover

Order/Family:

Charadriiformes: Charadriidae

National Status: Vulnerable (VU). Previously unassessed. The species is estimated to have declined by 31–39% over 10 years or three generations based on Asian Waterbird Census data, and therefore meeting thresholds for Criterion A2 (>30% in 10 years).

Photo: Norhafani Abdul Majid



Habitat and Ecology: Formerly considered a very common winter visitor and passage migrant to intertidal flats, mangroves and estuaries; the species also uses fields, open scrubby areas on reclaimed land, grassy areas and occasionally golf courses for foraging and as roosts. The birds typically arrive from late Aug and large flocks are known to occur at Sungei Buloh and Mandai mudflats. The Pacific Golden Plover has been considered the most abundant wintering shorebird in Singapore with mid-winter counts formerly exceeding 1,000 birds and the highest count being 2,000 individuals in 2005 (data: NParks). However, numbers have plummeted in the past two decades with much smaller congregations reported. Recent counts in Sungei Buloh typically involve 300-500 individuals (data: NParks).

Distribution: Breeds across the Eurasian Arctic east to W Alaska. Winters across E Africa, Indian

Subcontinent, S China and SE Asia, east to Australia and New Zealand.

Threats: Habitat loss and degradation of coastal intertidal areas (and grassy high tide roosts), but the species is especially vulnerable to threats across the East Asian-Australasian Flyway (outside Singapore), particularly shorebird hunting (and bycatch).

Scientific Interest and Potential Value: The population makes up a significant proportion of wader totals using the East Asian Australasian Migratory Flyway.

Conservation Measures: Long-term conservation and management of the Sungei Buloh and Mandai coastline is expected to benefit wintering populations.

Scientific Name:
Anarhynchus dealbatus

Common Name:
White-faced Plover

Order/Family:
Charadriiformes: Charadriidae

National Status: Endangered (EN). Previously unassessed. The species may have declined by 44–53% over 10 years or three generations based on Asian Waterbird Census data for the similar-looking Kentish Plover *C. alexandrinus* (with which it was formerly considered to be conspecific), therefore meeting thresholds for Criterion A2.

Habitat and Ecology: An uncommon and highly localised winter visitor in small numbers to sandy and rocky coasts, including rocky seawalls. White-faced Plover is typically seen associating with large groups of other plovers (e.g. Tibetan Sand-plover *A. atrifrons*). Records used to be mostly concentrated around Tuas and Changi, but the rocky seawall and breakwater at Marina East appears to be a regular wintering locality, with up to five individuals recorded over Jan-Mar 2022. The highest count to date is eight individuals reported in Oct 2008.

Photo: Norhafiani Abdul Majid



Anarhynchus dealbatus breeding plumage.

Photo: Geoff Lim



Anarhynchus dealbatus non-breeding plumage.

Distribution: Breeds SE China (Fujian) to Vietnam and Cambodia, with recent breeding reported S Vietnam. Winters mainland SE Asia coasts to Thai-Malay Peninsula and Borneo.

Threats: Habitat loss and degradation of coastal intertidal areas. The species is vulnerable to threats across the East Asian-Australasian Flyway (outside Singapore), particularly shorebird hunting (and bycatch).

Scientific Interest and Potential Value: Until recently it was thought to be a localised subspecies of Kentish Plover but phylogenetic studies show that it is distinct.

Conservation Measures: None specific, other than protection under the Wildlife Act.

Scientific Name:

Rostratula benghalensis

Common Name:

Greater Painted-snipe

Order/Family:

Charadriiformes: Rostratulidae

National Status: Endangered (EN). Formerly Critically Endangered. The species may have declined by 43–57% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data, and therefore met thresholds for Criterion A2. However, it appears to be adaptable and is known to colonise marshy areas, including such habitat on reclaimed land. Crepuscular, and hard to detect during surveys, so likely overlooked.

Habitat and Ecology: An uncommon resident occurring in well-vegetated edges of freshwater ponds and ditches, and wet scrub and grassland, including on reclaimed land. Records are widely distributed, with sightings spanning Jurong West, parts of Lim Chu Kang to the Singapore Botanic Gardens, Seletar and Lorong Halus wetlands. The highest counts to date involved 12 individuals at Serangoon in 1992, and 11 at Kranji Marshes in Feb 2022. There are several documented breeding records, most recently from Jan-Apr 2022 when at least two adult males with three to five chicks were documented at Marina East. Breeding has been documented in Feb, Jun, Jul and Oct in Singapore.

Photo: Cheng Heng Yee



Distribution: Sub-Saharan Africa, east to Indian subcontinent, S, E China, and across SE Asia to the Lesser Sundas.

Threats: Habitat loss and degradation of wet grassland and scrub. Marshy areas that form on reclaimed land are often colonised but such habitat tends to be ephemeral.

Scientific Interest and Potential Value: A polyandrous species, females more brightly plumaged than males.

Conservation Measures: Occurs within wetlands in some protected areas, e.g., Singapore Botanic Gardens. The maintenance and management of stands of rank marshy vegetation and reedbeds in Kranji Marshes and Lorong Halus wetlands may benefit the species.

Scientific Name:
Numenius arquata

Common Name:
Eurasian Curlew

Order/Family:
Charadriiformes: Scolopacidae

National Status: ssp. *orientalis*. Endangered (EN). Previously unassessed. The species is estimated to have declined by 47% over 10 years based on Annual Bird Census data and exceeding 90% when generation length is considered, and therefore meets thresholds for Criterion A2.

Habitat and Ecology: A rare winter visitor and passage migrant to muddy and sandy intertidal flats and estuaries, including on Pulau Ubin and Pulau Tekong. In Malaysia and Indonesia, the species typically associates with large flocks of Whimbrel *N. phaeopus*, godwits *Limosa* sp. and Great Knot *Calidris tenuirostris*. Historically, the strongholds for wintering birds were the Changi coast (e.g. Changi Cove) and the Serangoon Estuary (now mostly reclaimed), with six individuals reported from Serangoon in Sep 1987 being the highest count. Recent records mostly involve singletons from Sungei Buloh and the Pulau Tekong coast, with a high of four birds in Oct 2016.

Distribution: Breeds widely across Eurasia, from W Europe to Mongolia and N China; winters across Africa and Middle East, eastwards to E China and SE Asia.



Photo: Abdelhamid Bizid

Threats: Habitat loss and degradation of coastal intertidal areas. The species is also vulnerable to threats across the East Asian-Australasian Flyway, particularly shorebird hunting.

Scientific Interest and Potential Value: Scattered breeding populations across Europe and northern Asia migrate to different southern wintering grounds. The species has declined over much of its range and is Red Listed by several nations.

Conservation Measures: The sustained conservation and management of the Sungei Buloh Wetland Reserve and Chek Jawa (Pulau Ubin) coastline may benefit the species and several other shorebirds. Further surveys of wintering shorebirds on the Pulau Tekong coast may help to establish the importance of that site.

Scientific Name:
Limosa limosa

Common Name:
Black-tailed Godwit

Order/Family:
Charadriiformes: Scolopacidae



Photo: Norhafani Abdul Majid

National Status: *ssp. melanuroides*. Critically Endangered (CR). Previously unassessed. The species is estimated to have declined by 48% over 10 years based on Annual Bird Census data, and exceeding 90% when generation time is considered, and therefore meets thresholds for Criterion A2.

Habitat and Ecology: An uncommon winter visitor and passage migrant to sandy and muddy intertidal flats and estuaries, and occasionally freshwater ponds. The maximum count was 141 birds at Sungei Buloh in January 1996, but most records involve far fewer individuals and are concentrated over the autumn months. In recent years, counts typically number below 10 and there are years with no records. The highest count between 2014 and 2020 involved 32 birds at Sungei Buloh in September 2015. A few individuals continue to use Sekudu rocks off Pulau Ubin as a high tide roost, and these birds are likely to feed at Chek Jawa or Pulau Tekong.

Distribution: Breeds across Eurasia: from N Europe, east to N China; winters S Europe and Africa, eastwards to Indian Subcontinent, SE Asia and Australia.

Threats: Habitat loss and degradation of coastal intertidal areas. The species is also vulnerable to threats across the East Asian-Australasian Flyway, particularly shorebird hunting.

Scientific Interest and Potential Value: A remarkable long-distance migrant.

Conservation Measures: The sustained management of the Sungei Buloh Wetland Reserve and Chek Jawa (Pulau Ubin) coastline may benefit the species and several other shorebirds.

Scientific Name:

Tringa totanus

Common Name:

Common Redshank

Order/Family:

Charadriiformes: Scolopacidae

National Status: *ssp. eurhina, terrignotae, ussuriensis*. Endangered (EN). Previously unassessed. The species is estimated to have declined by 26–50% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data, and therefore meets thresholds for Criterion A2.

Habitat and Ecology: A winter visitor and passage migrant occurring in muddy intertidal flats, estuaries and mangrove creeks. Also feeds in ponds and occasionally, flooded fields and marshes, while roosting in mangroves, and typically associates with Marsh Sandpiper and Common Greenshank when they are present. The species has been considered among the commonest shorebird species in Singapore but the rate of decline indicates that this may not continue. The highest count to date involved 1093 individuals

Photo: Norhafani Abdul Majid



at Sungei Buloh in Sep 1998. Counts in recent years are lower, with congregations of around 200 and 250 birds at Sungei Buloh being more typical.

Distribution: Breeds widely across Eurasia: Scandinavia east to N China and Japan; also C Asia and the Qinghai-Tibetan Plateau. Winters Africa and Middle East, east to the Indian Subcontinent, SE Asia and Australia.

Threats: Habitat loss and degradation of coastal intertidal areas. As for all other migratory shorebirds, populations are at risk on their breeding grounds, wintering grounds and their intervening migratory routes.

Scientific Interest and Potential Value: Through satellite tracking, wintering birds in Sungei Buloh and Ubin have been tracked to breeding areas in the Tibetan Plateau, and migrating across the Himalayas (Li et al. 2021). Young birds often do not complete the full

migration to breeding areas, e.g. one individual banded as a juvenile in Senoko in Sep 1983 was recaptured at Pattani Bay, Thailand in Jul 1985 (MBR 1984-85).

Conservation Measures: The sustained management of mudflat habitat in Sungei Buloh will benefit the species. Extensions of the boundaries of the protected area towards the intertidal flats and Mandai will secure key foraging and roost habitat.

Scientific Name:
Tringa stagnatilis

Common Name:
Marsh Sandpiper

Order/Family:
Charadriiformes: Scolopacidae

National Status: Endangered (EN). Previously unassessed. The species is estimated to have declined by 41–52% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data, and therefore meets thresholds for Criterion A2.

Habitat and Ecology: Formerly common, the Marsh Sandpiper is a rare winter visitor and passage migrant occurring in sandy and muddy intertidal flats, estuaries and mangrove creeks, and occasionally foraging in freshwater marshes, ponds and wet grassland. It was once among the most abundant waders in Singapore, with the highest count being 770 individuals reported from Sungei Buloh in Dec 1998. Recent records are from Sungei Buloh, Seletar Dam and Pulau Ubin. Counts in recent years are a magnitude lower than the 1990s with mostly small parties of 2 to 5 birds and singletons reported except for a high count of 23 birds recorded in Oct 2020.



Photo: Yong Ding Li

Distribution: Breeds across Eurasia, from W Russia, east to NE China; winters Africa, SW Europe and Middle East, east to Indian Subcontinent, SE Asia and Australia.

Threats: Habitat loss and degradation of coastal intertidal areas. The species is also vulnerable to threats across the East Asian-Australasian Flyway.

Scientific Interest and Potential Value: One of the few wader species regularly using freshwater habitats.

Conservation Measures: The long-term conservation and management of mudflat habitat in Sungei Buloh will benefit the species. Recent extension of the boundaries of Sungei Buloh will also help secure key foraging habitat in Singapore.

Scientific Name:
Thalasseus bergii

Common Name:
Greater Crested Tern

Order/Family:
Charadriiformes: Laridae

Photo: Norhafani Abdul Majid



National Status: ssp. *cristatus*. Endangered (EN). Previously unassessed. The species is estimated to have declined by 42% over 10 years or three generations based on data from the Annual Bird Census and exceeding 90% when generation time is considered, and therefore meets thresholds for Criterion A2. It is however still regularly observed in the Johor Straits although numbers seen in recent years are smaller.

Habitat and Ecology: A non-breeding visitor to the coastal waters around Singapore, and most offshore islands; birds regularly rest on intertidal flats and sand bars. The waters around Pulau Ubin and Pulau Tekong (in the Johor Straits) are where there are regular feeding and roosting congregations. Gibson-Hill (1950) reported that it was fairly plentiful along the Singapore Strait and noted that it was then the commonest tern; this observation remains valid to this day. Congregations of c. 100 on kelong poles in the Johor Straits and feeding off Sungei Serangoon were typical during the 1990s. While still regular, recent counts are much lower, with

counts at mostly 10–50 individuals from 2019–2021. High counts include 145 birds on the sandy intertidal flats at Chek Jawa, Ubin in Jan 2001.

Distribution: Breeds in colonies off the coasts of Africa, the Arabian Peninsula and Iran (i.e. Red Sea, Persian Gulf), and the Indian Subcontinent, eastwards to E China, SE Asia and Australia.

Threats: Plastic and water pollution likely pose a threat to the species, as they do with most seabirds. Other threats tend to operate at breeding colonies, of which there are none in Singapore waters.

Scientific Interest and Potential Value: An important component of the seabird community, taking small fish and invertebrates.

Conservation Measures: The sustained management of coastal habitat around Pulau Ubin will likely benefit the species.

Scientific Name:
Onychoprion anaethetus

Common Name:
Bridled Tern

Order/Family:
Charadriiformes: Laridae

Photo: Lim Kim Chuah



National Status: ssp. *anaethetus*. Endangered (EN). Previously unassessed. Expected to meet thresholds for Criterion D; the population at the only known breeding colony (Horsburgh Lighthouse, Pedra Branca) is estimated at no more than 200 individuals.

Habitat and Ecology: An uncommon tern of offshore waters around Singapore, and a localised breeding visitor to Pedra Branca. Specimens collected from Horsburgh in Oct 1921 were the first record for Singapore. Individuals and small groups are regularly documented during pelagic surveys and the highest known counts involve 100–140 individuals in the Singapore Straits. Bridled Terns are known to disperse during the winter months and return to breed in Apr. From Apr, Bridled Terns are the dominant species of tern on the island where they nest on the flat roof of buildings, unusual as the species is normally known to nest on coral beaches, rocky and sandy slopes. One egg is laid.

Distribution: Breeds across tropical Atlantic, Indian, and W Pacific Oceans. In SE Asia, breeding colonies are on small islands across the South China Sea, to

the Philippines and eastward to New Guinea. Large breeding colonies are known from the E coast of Pahang and Johor (e.g. Pulau Seri Buat, Pulau Tinggi) based on recent surveys.

Threats: Plastic and water pollution likely poses a threat to the species, as it does with most seabirds. Other threats tend to operate at breeding colonies.

Scientific Interest and Potential Value: Reliant on offshore islands for breeding.

Conservation Measures: The species is well protected as Horsburgh Lighthouse is a restricted area, as long as no attempt is made to intervene. Further surveys should aim to track the size of the breeding population.

Scientific Name:
Sterna sumatrana

Common Name:
Black-naped Tern

Order/Family:
Charadriiformes: Laridae

National Status: ssp. *sumatrana*. Endangered (EN). Expected to meet thresholds for Criterion D; the population at the only known breeding colony (Loyang Rocks) is estimated to be well below 100, with the single highest count consisting of 30–35 individuals.

Habitat and Ecology: An uncommon resident of inshore coastal waters around Singapore, and a localised breeder on Loyang Rocks. This species is typically more common in the Straits of Johor than the Singapore Straits where Bridled Tern is the dominant resident tern. Birds seen here may also involve dispersants from further north in Johor. Breeding has been regularly observed at Loyang Rocks since the 1940s, with three pairs documented in Jul 1949 (Gibson-Hill 1950). Birds lay a single egg on the bare rock surface, with up to seven pairs documented incubating or feeding young. The documented breeding season is from Apr to Aug. The highest counts known to date involved 30 birds off

Photo: Lee Tiah Khue



Changi Point on 12 Apr and 35 off Pulau Ubin in Apr 2005.

Distribution: Breeds in colonies across Indian Ocean, E and SE Asia, Indonesia, the Philippines, and New Guinea to Australia.

Threats: Plastic and water pollution likely pose a threat to the species, as they do with most seabirds. Large congregations of photographers who approach too close may cause disturbance to nesting birds, and the sole breeding site is technically unprotected.

Scientific Interest and Potential Value: Familiar to many people as its image used to feature on Singapore currency.

Conservation Measures: Further actions are needed to enhance protection for nesting birds on Loyang Rocks.

Scientific Name:
Leptoptilos javanicus

Common Name:
Lesser Adjutant

Order/Family:
Ciconiiformes: Ciconiidae

National Status: Vulnerable (VU). Previously unassessed. Data on the species' status is still limited but it is reasonable to benchmark to the species' IUCN Red List status.

Habitat and Ecology: A small resident population once occurred in Singapore until the 1900s but this went extinct and the species was subsequently considered a rare non-breeding visitor, likely from colonies on the Johor coast. Records, typically singletons, have been concentrated around Sungei Buloh Wetland Reserve, Mandai Mudflats, Lim Chu Kang and Neo Tiew Crescent, and in the Western Catchment. The Lesser Adjutant appears to have become commoner in the past 5–6 years, and since 2020 small parties are regularly seen foraging on intertidal mudflats and mangrove creeks in Sungei Buloh, with as many as 17 birds counted in April 2023. A boat-based survey that spanned the coastal waters off Raffles Marina

Photo: Con Foley



and Mandai Mudflats tallied 15 individuals, with 10–13 seen feeding in Sungei Buloh alone. The species scavenges carcasses but also hunts fish and reptiles.

Distribution: Indian Subcontinent, east to mainland SE Asia and the Greater Sundas.

Threats: Habitat loss and degradation of coastal intertidal areas and mangroves.

Scientific Interest and Potential Value: Across its range the species is known to play an important scavenger role, as with vultures. Its unusual appearance can make it a flagship species.

Conservation Measures: The sustained conservation and management of coastal wetlands in Sungei Buloh, Lim Chu Kang and Kranji coastline is likely to benefit the species.

Scientific Name:
Ixobrychus sinensis

Common Name:
Yellow Bittern

Order/Family:
Ciconiiformes: Ardeidae

National Status: Vulnerable (VU). Previously unassessed. The species, whilst still often seen, is estimated to have declined by 35% over 10 years or three generations based on Annual Bird Census, and therefore meets thresholds for Criterion A2.

Photo: Norhafiz Abdul Majid



Habitat and Ecology: A winter visitor (possibly rarer as a resident breeder) of well-vegetated edges of ponds, freshwater marshes, reedbeds and wet grasslands. Migrants may also show up in mangroves and woodland with marshy fringes. Evidence of breeding dates back to the 1980s along the marshland abutting Kranji Reservoir, and the first nest was documented in Jun 1986. The known breeding period in Singapore spans May to Aug. Marshy areas and reedbeds in the Kranji and Neo Tiew area remain a stronghold, but birds occur widely during the migratory period.

Distribution: Indian subcontinent; C and E China, to SE Russia, Japan; Taiwan, SE Asia, Greater and Lesser

Sundas, the Philippines and New Guinea. E Asian populations are migratory, wintering in SE Asia.

Threats: Loss and degradation of freshwater wetland (ponds), marshland and reedbed habitat the key threat. Agricultural expansion in the Kranji area has driven clearance of marshy scrub and *Phragmites* and cattail reedbeds.

Scientific Interest and Potential Value: An indicator species in freshwater wetland habitat.

Conservation Measures: Further research to understand the drivers of decline would be needed.

Scientific Name:
Egretta eulophotes

Common Name:
Chinese Egret

Order/Family:
Ciconiiformes: Ardeidae

National Status: Endangered (EN). The species is estimated to have declined by 43–69% over 10 years or three generations based on Annual Bird Census and Asian Waterbird Census data, and therefore meets thresholds for Criterion A2. Considered as globally Vulnerable in the IUCN Red List.

Habitat and Ecology: A rare winter visitor occurring in intertidal flats, estuaries, mangroves and creeks across Singapore, including Pulau Ubin and Pulau Tekong. The Serangoon Estuary (now Lorong Halus Wetlands) used to be a known wintering stronghold with high counts exceeding 10 individuals recorded through the 1980s. In recent years, double-digit counts come solely from Chek Jawa, Pulau Ubin, with up to 10 birds counted in Apr 2022. The species is more dependent on coastal wetlands than other egrets, and forages very actively on intertidal flats.

Distribution: Breeds on coasts of Russian Far East, Korean Peninsula, NE and E China; winters coasts of mainland SE Asia, Thai-Malay Peninsula and the Greater Sundas, east to Sulawesi and the Philippines.

Photo: Abdelhamid Bizid



Threats: Habitat loss and degradation of coastal intertidal areas and mangroves.

Scientific Interest and Potential Value: The scarcest of the egrets occurring in Singapore. One bird observed on 27 Feb 2022 on Pulau Ubin had been banded in South Korea on 24 Jun 2021 as a juvenile at its nest.

Conservation Measures: The sustained management of coastal intertidal habitat around Ubin, especially Chek Jawa, will likely benefit the species.

Scientific Name:
Ardea sumatrana

Common Name:
Great-billed Heron

Order/Family:
Ciconiiformes: Ardeidae

National Status: ssp. *sumatrana*. Critically Endangered (CR). New information suggests that while the population has increased over time, the species continues to meet thresholds for Criterion D for a small population estimated at fewer than 50 individuals.

Habitat and Ecology: An uncommon resident occurring in intertidal flats, estuaries and mangrove creeks, as are rocky shores and reefs on small islands in the Singapore and Johor Straits, including Pulau Ubin and Pulau Tekong. Records from the Johor Straits had been scarce, but the species appears to have colonised the estuarine mangroves in Sungei Buloh, while the overall number of records has increased. At least two pairs appear to have established themselves at Sungei Buloh Wetland Reserve, and birds are now regularly seen in courtship display. The highest counts recorded in recent years involved five birds on Mandai Mudflats in Dec 2022, and a total of eight during a pelagic survey along the Johor Straits between Raffles Marina and Mandai Mudflats. Breeding was first reported in 1978: a nest with one young on a mangrove islet off Pulau Bukom. The breeding period spans the months of Feb to Jun, and Nov.

Distribution: Coastal SE Asia, from Greater and Lesser Sundas, the Philippines, east to Sulawesi, Moluccas, New Guinea and N Australia.

Photo: Yong Ding Li



Threats: Habitat loss and degradation of coastal intertidal areas, reefs and mangroves.

Scientific Interest and Potential Value: Largest resident heron, and unlike its closest relatives the species appear to be a coastal specialist.

Conservation Measures: The sustained management of coastal habitat around Ubin, especially Chek Jawa, and Sungei Buloh is expected to benefit the species.

Scientific Name:***Elanus caeruleus*****Common Name:****Black-winged Kite****Order/Family:****Accipitriformes: Accipitridae**

National Status: *ssp. vociferus*. Vulnerable (VU). The species is assessed to have met thresholds for Criterion D for small population not exceeding 200 individuals, whilst suitable open country habitat has declined in Singapore.

Habitat and Ecology: A locally common resident of open country habitats such as grassland, scrub, freshwater marshes and occasionally playing fields, often uses recently reclaimed land. The species was historically considered a winter visitor, but sometime between the 1970s to 1980s it probably colonised recently cleared or reclaimed areas. Records are widely scattered but with concentrations in the Changi/Tanah Merah, Serangoon, Kranji and Tuas areas. The first breeding record was a pair seen at nest at Jalan Lembah Bedok in May 1986. More recently, there are several breeding records spanning 2011 to 2022, including well documented records from the Turut Track (Kranji) area.

Photo: Lua Wai Heng



Distribution: S Europe and Africa, east to S China and Indian Subcontinent. Also much of SE Asia, Sulawesi and New Guinea.

Threats: Loss and clearance of open country habitats, including grassland and coastal scrub.

Scientific Interest and Potential Value: The species complex has a very wide range from the Americas to Australia. It is a predator of rats and other small mammals.

Conservation Measures: Sustained management of open scrubby areas in the Kranji area can be expected to benefit the species.

Scientific Name:***Spilornis cheela*****Common Name:****Crested Serpent Eagle****Order/Family:****Accipitriformes: Accipitridae**

National Status: *ssp. malayensis*. Critically Endangered (CR). The species is assessed to have met thresholds for Criterion D with a small breeding population estimated at 2–5 pairs.

Photo: Norhafani Abdul Majid

