

THE ORIENTAL SKYLARK *ALAUDA GULGULA* IN LAOS:
AN OVERLOOKED AND THREATENED FARMLAND BIRD.J. W. DUCKWORTH¹

RÉSUMÉ. — *L'Alouette gulgule* *Alauda gulgula* au Laos : un oiseau rural menacé et passé inaperçu. — Cette alouette ne fut découverte au Laos qu'en 1997 mais était probablement restée inaperçue par le passé. Elle a depuis été notée en beaucoup d'endroits de la plaine de Vientiane, et dans quatre sites ailleurs dans la plaine du Mékong, sur un plateau herbeux et un aéroport de moyenne altitude. Toutes les localités sont en terrain plat. Toutes les zones de reproduction connues ont des étendues d'herbes clairsemées basses ou du moins peu hautes durant le milieu et la fin de la saison sèche quand, contrairement aux passereaux sympatriques, l'espèce niche. Des observations au long de l'année en dix sites non forestiers de la plaine de Vientiane n'ont révélé la reproduction qu'en deux de ces sites qui, tous les deux, présentaient des rizières (monoculture non intense) proches d'étendues d'eau permanentes. Ces alouettes ne nichèrent pas dans deux sites caractérisés par des rizières irriguées de saison sèche, ni dans deux autres avec une monoculture de riz loin de l'eau, ni dans encore deux autres où le lit du Mékong était largement exondé en saison sèche. Ailleurs au Laos il n'y a pas d'observations dans les vastes prairies sèches secondarisées des collines ni dans les prairies naturelles au milieu de la forêt décidue à Diptérocarpacées. Si, dans tout le Laos, l'espèce n'occupe que des habitats comme ceux de la plaine de Vientiane, elle se trouve soumise à de sévères menaces dues à l'intensification agricole qui a cours.

SUMMARY. — Oriental Skylark *Alauda gulgula* was first found in Laos only in 1997 but was presumably overlooked historically. It has since been recorded from many sites on the Vientiane plain, four sites elsewhere on the Mekong plain, one mid-altitude grassy plateau and one mid-altitude airport. All sites are on level land. All known breeding areas have extensive rather sparse short- to mid-height grass during the mid- and late dry season, when (in contrast to sympatric passerines) the species breeds. Year-round observations at ten non-forest sites on the Vientiane plain found breeding at only two sites, both supporting extensive non-intensified (single-crop) paddy rice close to permanent waterbodies; birds did not breed at two sites with dry-season irrigated rice, at two sites with single-crop rice but far from water, or at two sites with extensive Mekong channel bed exposed in the dry season. Elsewhere in Laos there are no records from extensive secondary hill dry grassland or natural grassland within deciduous dipterocarp forest. If the species is, across Laos, mainly using habitats as on the Vientiane plain, it faces severe national threats from ongoing agricultural intensification.

Oriental Skylark *Alauda gulgula* was first recorded in Laos in 1997 (P. Davidson in Robson, 1998) and most records remain unpublished, with only brief mentions in Parr & Parr (1998) and Duckworth *et al.* (1999, 2002). This paper reports a year-round survey for Oriental Skylark around Vientiane, the capital city, to assess distribution, habitat use and breeding phenology, and it presents all known Lao records of the species. As a farmland bird (Delacour & Jabouille, 1931; Davidson, 2006), the species's national status warrants clarification: concern is increasing over farmland bird status in South-east Asia (Round, 2002; Round & Gardner, in press) and other parts of the tropics (e.g. Hicklin & Spaans, 1992; Dhindsa & Sani, 1994; Parasharya *et al.*, 1996; Dhindsa *et al.*, 1998; Borad *et al.*, 2000). Understanding, however,

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lags far behind that about the sustained major declines in many once-common farmland birds in Britain (e.g. Aebischer *et al.*, 2000), where one of the most steeply declining species is the closely-related Eurasian Skylark *A. arvensis* (e.g. Donald & Vickery, 2001), a pattern reflected elsewhere in Europe (e.g. Donald *et al.*, 2001b).

Laos covers 236,800 sq. km of land-locked, largely rugged, terrain. Most of the level land is associated with plains of the Mekong river (which forms much of the country's western border) and of several major tributaries (Fig. 1). The climate is extremely seasonal: almost no rain falls during the dry season (November–March), but rain is very heavy in the wet season (May–September); October and April are months of transition. Compared with other South-east Asian countries, Laos has a low human population density. During the 1970s and 1980s the country's policies of self-sufficiency and limited international trade encouraged agriculture to be largely traditional, low-intensity, styles. During the 1990s, as Laos sought trade regionalisation and external investment poured in, and abetted by ongoing high human population growth rates, agriculture greatly expanded and intensified, reflecting trends in adjacent Thailand in the 1970s–1980s (UNDP 1999; Shrestha *et al.*, 2006). These trends continue through the official national development policy (NGPES, 2004).

The birds of Laos were documented only rather patchily during the main pre-1950 era of biological exploration. Very few data were collected during 1949–1989, reflecting the revolutionary turmoil followed by political isolationism during the 1950s–1980s. During 1992–1998, baseline bird surveys visited most of the country's remaining large blocks of natural habitat, with a strong focus on forests (Thewlis *et al.*, 1998; Duckworth *et al.*, 1999; Duckworth & Tizard, 2003); these found 67 species of bird new to Laos, and such finds are still commonplace (Duckworth, 2006).

STUDY AREA AND METHODS

The Vientiane plain is bordered by the Mekong River to the south and by rugged hill ranges to the west, north and east. At c. 2000 sq. km, it is the largest tract of level land in the northern half of Laos, and is one of the most agriculturally productive parts of the country.

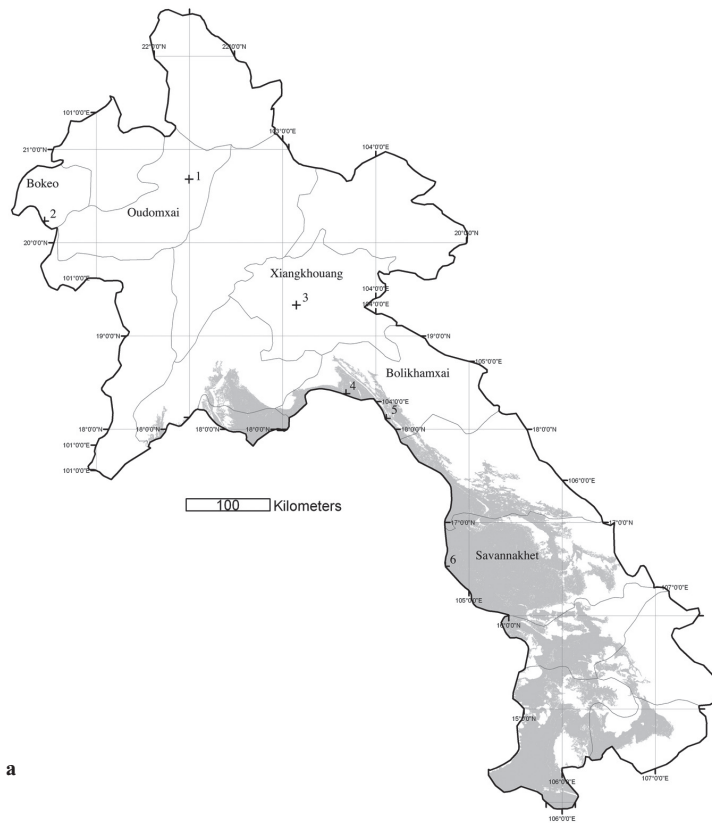
Ten study sites were selected (subjectively, through pre-existing knowledge) to encompass the range of non-forest habitats on the parts of the plain within 20 km of Vientiane, with a focus on wetlands, known to be sites of elevated conservation importance but undergoing high rates of habitat conversion. At each site, an ecologically constant route was followed on foot in every month of the year ('ecologically constant' in that around wetlands, the route remained consistent with respect to water's edge, following the swelling and shrinkage of water-bodies through the annual cycle). Observations began in the early morning and at each individual site ran for a roughly similar time in each month. Between sites, this time ranged from c. 1 hr (at some urban sites) to 5–6 hr (for large wetlands); one site also involved a 2-hr circuit on a wooden pirogue (Duckworth & Evans in press). All birds were counted on each visit, except for a few common and widespread species.

For comparisons within a site between months, the day-count is an appropriate unit because of the standardized route and duration. Quantitative comparisons between sites of those figures, however, are not informative because sites varied greatly in duration of observation, total area searched, and the proportion of area searched that was potential skylark habitat (the survey's remit of all bird species necessitated long periods searching areas unlikely to support skylarks). Song levels were noted rigorously; other breeding indications were recorded if noticed, but not sought specifically. Eurasian Skylarks sing not just for breeding purposes, but also during escape or antagonistic encounters (Donald, 2004); these observations showed that Oriental Skylarks do the same, and so care was taken to distinguish these generally short bursts from prolonged, high-flying song. All directional overhead movements were noted.

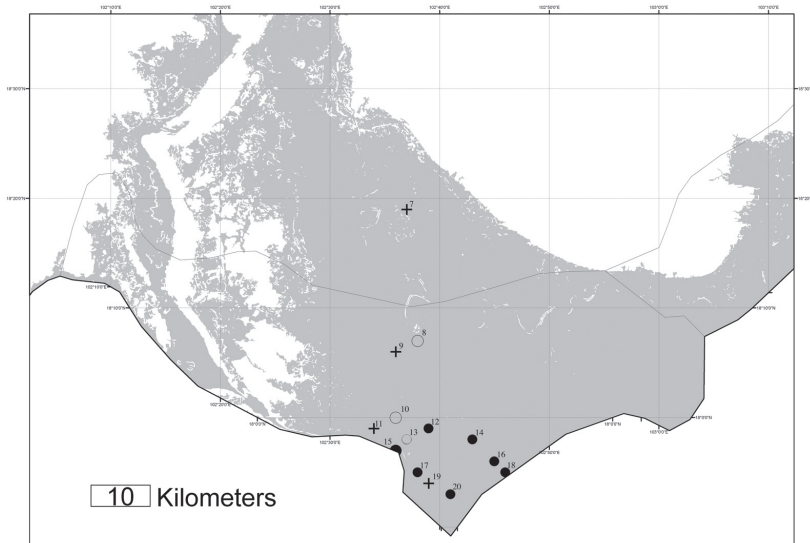
At each site notes on the agricultural cycle were taken at each visit. Observations were made between August 2003 (reconnaissance) and July 2005; the 12 months were spaced out over two years to reduce the effects of any single year being atypical, with counts in December 2003; February, April, May, June, August, September, October and November 2004; and January, March and July 2005. Various other sites on the Vientiane plain were visited opportunistically during the two-year period. To establish the species's national distribution, all published literature was reviewed and unpublished records were sought from correspondents.

DISTRIBUTION AND ABUNDANCE

Since the first Lao record in 1997, Oriental Skylark has been found widely on the Vientiane plain and at six sites elsewhere in Laos (Table I, Fig. 1). All sites with singing birds fall in North Laos (*sensu* King *et al.*, 1975, as clarified in Duckworth *et al.*, 1999); but since the lark's discovery in Laos, the southern half of the country has been poorly covered by people



a



b

Figure 1. — Locations of Oriental Skylark records in Laos (1a) and on the Vientiane plain (1b). Grey areas = lowland plains. Black circles = Vientiane study sites with skylark record(s). Open circles = Vientiane study sites with no skylark records. + = site with incidental record. 1 = Oudomxai airport. 2 = Ban Viengkham. 3 = Ban Latsen. 4 = Pakxan wetland. 5 = Ban Khonkhoang. 6 = Savannakhet. 7 = Ban Sivilai. 8 = Nong Xuam. 9 = Ban Dongbong. 10 = Nong Tha. 11 = Vientiane Airport. 12 = Boeung That Louang. 13 = Nong Chanh. 14 = Nong Sang. 15 = Vientiane city Mekong bank. 16 = Nong Pen. 17 = nong Momai. 18 = Ban Xiangkhouan Mekong bank. 19 = Nong Hai. 20 = Nahai-Dongphosi. 21 = Ban Hatkanxa.

TABLE I
Lao records of Oriental Skylark

Site name, unit ¹	Co-ordinates; altitude	Date(s) and numbers found ²	Reference(s)	Fields at site	Nearest permanent non- flowing water
Away from Vientiane plain					
Oudomxai airport, Oudomxai pr.	20°41'N, 102°00'E; 640 m	1s on 26.III.05	JWD	Airfield grassland	None nearby
Ban Viengkham, Bokeo pr.	20°14'N, 100°27'E; 330 m	3s on 01.I.00, beside Mekong	Duckworth <i>et al.</i> 2002	Dry season fallow	1 km
Ban Latsen, Xiangkhouang pr.	19°20'N, 103°09'E; 1120 m	2s on 18.IV.00	Duckworth <i>et al.</i> 2002	Much short- mid height permanent grass	Within site
Pakxan wetland, Bolikhamxai pr.	18°23'N, 103°41'E; 155 m	2s1n on 29.I.05	JWD	Much short- mid height permanent grass (ex- airfield)	Within site
Ban Khonkhoang, Bolikhamxai pr.	18°07'N, 104°07'E; 155 m	1s on 15.II.05	JWD	Many dry- season stubbles	200 metres
Savannakhet town Mekong bank, Savannakhet pr.	16°32'N, 104°45'E; 150 m	1n on 25.V.05; flushed, flew off high to south	M.K. Poulsen <i>in litt.</i> 2005	Not recorded	Not known
Vientiane plain confirmed or presumed breeding areas ³					
Ban Sivilai, Thulakhom di.	18°19'N, 102°37'E; 175 m	2s on 20.XII.97; 2s on 27.III.05; various other records 1998–2005	Robson 1998; JWD; J.W.K. Parr <i>in litt.</i> 2005	Many dry- season stubbles	500 metres
*Nong Pen, Hatxayfong di.	17°55–56'N, 102°45'E; 165 m	See Fig. 2a	JWD	Many dry- season stubbles	Within site
*Nong Sang, Xaisettha di.	17°58'N, 102°42–44'E; 170 m	See Fig. 2b	JWD	Many dry- season stubbles	Within site
Nong Hai, Hatxayfong di.	17°54'N, 102°39'E; 165 m	4s1n on 22.I.05; 3s2n on 18.II.05; 1s4n on 05.V.05; 1n on 28.IX.04	JWD	Many dry- season stubbles	Within site
Ban Dongbong, Naxaythong di.	18°06'N, 102°36'E; 175 m	1s on 28.II.05	JWD	Many dry- season stubbles	1 km
Vientiane Airport, Sikhottabong di.	17°59'N, 102°34'E; 165 m	1s on 28.I.05; 2n on 01.VI.05	JWD	Airfield permanent grassland	Within site

TABLE I (continued)

Site name, unit ¹	Co-ordinates; altitude	Date(s) and numbers found ²	Reference(s)	Fields at site	Nearest permanent non- flowing water
Vientiane plain, not breeding areas ³					
*Nahai–Dongphosi, Hatxayfong di.	17°52–53' N, 102°40–42' E; 170 m	2s1n on 20.I.05, 1n on 05.X.04, 13.XI.04, 2n on 13.XII.03	JWD	Many dry- season stubbles	8 km
*Vientiane city Mekong bank, Chanthabouli & Sisattanak di.	17°57–58' N, 102°35–37' E; 165 m	1n on 17, 20.V.05; on the ground	JWD	Small area, dry-season maize and other crops; no stubbles	500 metres
*Boeung That Louang, Xaisettha di.	17°59' N, 102°39' E; 165 m	See Fig. 2c	JWD	All-year rice, only short- term stubbles between crops	Within site
*Ban Xiangkhouan Mekong bank, Hatxayfong di.	17°55' N, 102°46' E; 160 m	1n on 18.II.04, 02.VI.04, 03.VII.05, 12.X.04, 11.XI.04, 11.XII.03	JWD	Large area, dry-season maize etc., no stubbles.	1 km
*Nong Momai, Sisattanak di.	17°55' N, 102°38' E; 165 m	1n flew over on 18.XI.04	JWD	All-year rice, <2 ha	Within site
Ban Hatkanxa, Hatxayfong di.	17°50' N, 102°36' E; 160 m	1n on 03.X.04; several songsters on 16.III.05 and 02.IV.05; 6+ on 11.III.06	JWD; R. Eve in litt. 2005; D. Van Gansberghe in litt. 2005	Not recorded	Within site
Vientiane plain study areas, no skylark records ³					
*Nong Xuam, Xaithani di.	18°07' N, 102°38' E; 175 m	none	JWD	All-year rice, only short- term stubbles between crops	Within site
*Nong Chanh, Sisattanak di.	17°58' N, 102°37' E; 165 m	none	JWD	None (urban)	Within site
*Nong Tha, Chanthabouli di.	18°00' N, 102°36' E; 165 m	none	JWD	None (peri- urban)	Within site

¹ pr. = province, di. = district.

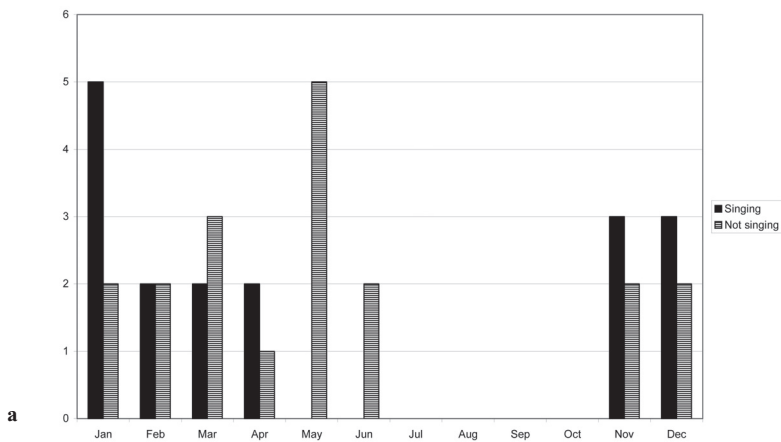
² s = bird in prolonged song (i.e. territory holder); n = bird giving no or only brief phrases of song.

³ all sites fall within Vientiane municipality, except Ban Sivilai which lies in Vientiane province.

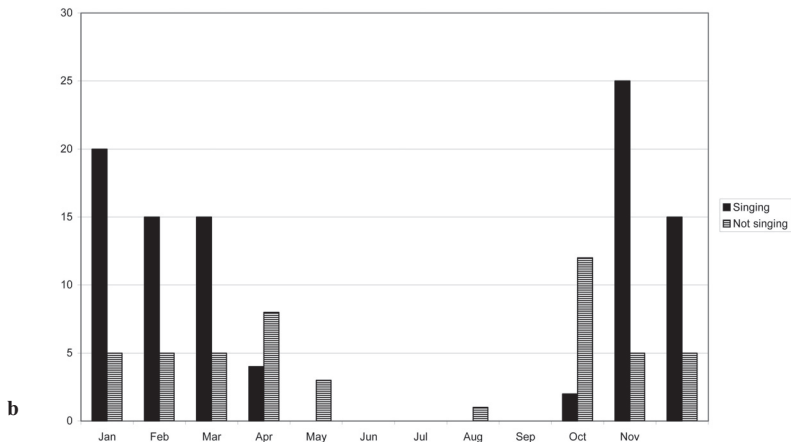
* site covered with standardized monthly walks; in all months not mentioned, a zero count was recorded. Coverage at other sites was opportunistic and no zero counts can be inferred.

likely to find it. None of the three most northerly sites was visited sufficiently often to clarify the species's status, but at all three, birds were in prolonged song. On the Vientiane plain, breeding was proven (multiple sightings of adults carrying food and of fresh juveniles) and the species was recorded in all months (Table I, Fig. 2). Alström (2004) mapped Oriental Skylark throughout Laos; although records are not yet available to support this (Fig. 1), the Mekong

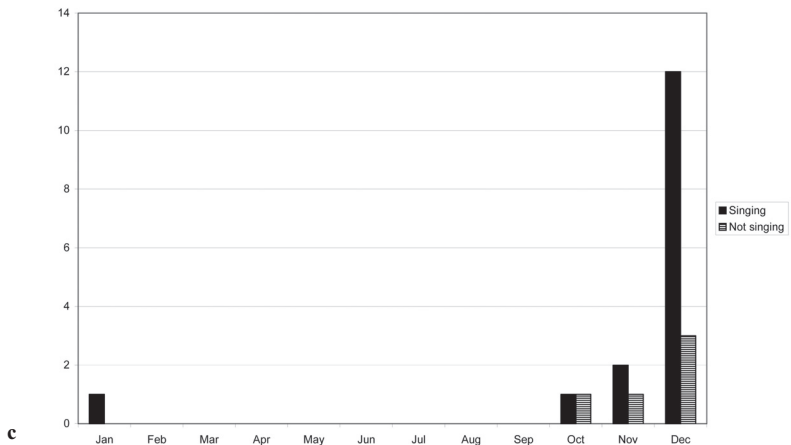
Nong Pen



Nong Sang



Boeung That Louang



plain has been barely surveyed outside Vientiane and Pakxan, yet has widespread habitat superficially suitable for the skylark, especially downstream of Vientiane. Densities at the two main sites of the ten, Nong Pen and Nong Sang, were high: at the appropriate season, several songsters were audible simultaneously from anywhere across several square kilometres at the latter. Occupancy is, however, highly localized: the 3 km band of land between Nong Sang and Nong Pen but furthest from each water-body, lacked skylarks, and Nahai–Dongphosi, where the species was found in song only once, lies only 8 km away from these sites.

HABITAT USE

Oriental Skylark was recorded regularly at half the Vientiane study sites (Table I), included all three retaining extensive paddy stubbles through the dry-season (rain-fed lowland rice, under the definition of Khush, 1984), one with short-term stubbles between harvest and replanting (irrigated rice), and one area with no paddies but close to such habitat. Of three sites where it was not found two lacked any significant area of paddies, and one was rural reservoir margin surrounded by intensively cropped paddies with year-round irrigation. The other two sites lacked stubbles, and only odd skylarks were recorded. Oriental Skylarks were one of the three bird species eating the most rice grains spilt during harvest in Gujarat, north-west India (Borad *et al.*, 2000), so an association with rice is not surprising; but as 98% of grains in Gujarat were consumed within a month of harvest (Borad *et al.*, 2000), other factors are probably important in a habitat selection that lasts throughout the dry season.

Long-term territorial birds were confirmed only during the dry season, and only in the wet-season flood areas around permanent wetlands. At the two main breeding areas, Nong Pen and Nong Sang, birds were concentrated in extensive, but rather sparse, grass that stayed at c. 30–60 cm (maximum c. 90 cm) for several months (eschewing interspersed patches of ranker and/or taller growth, and areas with very little vegetation cover). This is startlingly similar to observations from Taiwan, where Oriental Skylarks moved out of growing spring grass when it reached about 80 cm and into to shorter-grass areas (Yuan Hsiao-Wei, 1986); and it reflects precisely the optimal sward height for *A. arvensis* in Europe (Donald *et al.*, 2001a, Töpfer & Stubbe, 2001). Such habitat is very localized on the Vientiane plain: away from permanent pools or artificially inundated areas, the plain is parched and dusty (with the field layer largely dead and dry) for several months each year, whereas in the wet season, almost everywhere floods at least intermittently, with large tracts being inundated for weeks at a time.

The Nong Pen population used dry-season paddy stubbles, that at Nong Sang a mosaic of marsh pasture, fallow rice paddies and dry-season paddy stubbles. These sites, both close to permanent pools, had much richer post-harvest (= dry season) growth of 'weed' grass and mixed dicotyledons than in paddies further from permanent waterbodies, presumably reflecting their moister upper soil. Vegetation height at both sites was restrained by low-intensity grazing by domestic bovinds. Among the incidental sites of Vientiane, only Nong Hai and Ban Sivilai were confirmed to support territorial populations: both also had extensive well-vegetated dry-season stubbles adjoining wetlands. Of the ten main study sites, only Nahai–Dongphosi contained extensive dry-season stubble with no fair-size permanent wetland nearby: and skylarks did not breed here in significant numbers, if at all. The 3 km band of land between Nong Sang and Nong Pen but furthest from each water-body also lacked singing skylarks, despite the extensive dry-season stubbles. This apparent association of skylarks with wetlands needs confirmation, because the evidence of breeding absence from paddy stubbles well away from wetlands comes from only these two sites. Agricultural habitats outside the zone of prolonged wet-season flooding are rapidly carpeted by coarse invasive exotic perennials, notably the com-

◀ Figure 2. — Monthly counts of Oriental Skylarks from standardized routes around three Vientiane wetlands, two supporting largely traditional paddy agriculture with one crop per year and a dry-season fallow (Nong Pen, 2a; Nong Sang, 2b) and one highly intensified supporting wet and dry season crops (Boueng That Louang, 2c). At each site a single count was made in each month (i.e. including all months with zero indication on the figure). Non-singing birds include a few giving only short song phrases; singing birds are those in prolonged song.

posite *Chromolaena odorata* (= *Eupatorium odoratum*), unless ploughed annually, when their stubbles develop only the feeblest of dry-season field layer green growth. The apparent association of skylarks with wetlands thus seems to arise through two factors: enhanced dry-season grass and weed growth, with suppression of ruderal colonization by wet-season flooding. The healthy populations of Oriental Skylark in the grassland habitats of the outer floodplain of the Great Lake of Tonle Sap, Cambodia (Davidson, 2006), are also patchy in distribution, even in apparently extensive suitable habitat, and while not yet studied directly, it seems that they might require certain habitat characters associated with the fringe of low intensity cultivation (P. Davidson, *in litt.*, 2006).

The Mekong plain provides an extensive potentially suitable landscape for Oriental Skylark, although its full occupancy remains to be confirmed. The only two occupied sites away from it were on a large mid-altitude plateau and at an airport (Fig. 1). Airport maintenance operations provide suitable conditions for the species elsewhere (e.g. Hong Kong; Melville, 1980), and more information is needed on skylark numbers at Lao airports. No Lao records were traced from several other habitats that might be expected to hold the species: extensive grass and annual cultivation on hilly terrain (which is largely dry and secondary), and grass within deciduous dipterocarp forest. Both of these cover large parts of Laos, the former particularly in the northern highlands, the latter in the southern plains (e.g. Vidal, 1960). Both have been surveyed fairly well and it seems unlikely that they are occupied. Similarly, in Cambodia the species is absent from even quite large (2–4 sq. km) openings of grassland and/or paddy within plains deciduous dipterocarp forest (P. Davidson *in litt.*, 2006). Oriental Skylark evidently does not breed in the seasonally-flooded Mekong channel (at best it might be highly localized), as shown by monthly visits to Ban Xiangkhoun (Table 1), many visits during 1992–2005 to the Vientiane city Mekong, and the river-bird surveys more widely across Laos of Duckworth *et al.* (1998b, 2002). This contrasts with the abundance in dry-season river channels of breeding Paddyfield Pipits *Anthus rufulus*, the only other ground-nesting insectivorous passerine with which the lark shares the dry-season paddy stubbles of the Vientiane plain (an association earlier remarked, for Cambodia, by Engelbach, 1938).

BREEDING AND SEASONALITY

At the five regularly occupied sites, counts varied markedly with season. At the two main breeding sites, Nong Pen (Fig. 2a) and Nong Sang (Fig. 2b), high song output during November to March gave high counts. Although song declined during April (last heard on 16.IV.04), observed numbers remained high because fresh juveniles were readily found. The last bird obviously a juvenile was seen on 20.V.04, and by June, few birds were found, with hardly any during July–September. At least 90% of the breeding areas flooded at least intermittently during June–July and for long periods in August–September. A rise in sightings, mostly of non-singing birds, just preceded the resurgence of song between mid October (earliest, 07.X.04) and mid November. This pattern reflects the cycle of rice cultivation and wet-season flooding of low-lying land. Most paddies are planted (and flooded) in April–June, latest July, for wet-season growth and are harvested in October, latest November. Hence, their ground-nesting birds must breed in the dry season, or use only the narrow raised earthen banks between paddies; even these are often flooded in most fields. By contrast, song in other passerines of these study areas (including the only other lark there, Indochinese Bush Lark *Mirafra marionae*) peaks in February–July and they breed in the early–mid wet season (author's own data), as for most songbirds in non-peninsula Thailand (McClure, 1974, Round, 1982), an area with similar natural habitats, climate and seasonality. These breeders are presumably taking advantage of the flush of new vegetation and associated insect numbers at the start of the wet season, akin to the reasons behind most Holarctic passerines nesting in late spring and early summer. No other bird in the Vientiane plain is known to finish breeding by May (author's own data). This unusual seasonality is reflected further down the Mekong plains in Cambodia, where song-flights occur during January–March (P. Davidson *in litt.* 2006), but was not documented in studies in two other nearby areas with similar monthly rainfall patterns. Around Bangkok (Thailand), Her-

bert (1923) found most skylark nests in early May–late June, commonly into July; a few were earlier; the song period was the dry season and the early part of the rains. P. D. Round (*in litt.*, 2005) considers that breeding in Thailand today is earlier than this, but whether this reflects a genuine change or is an artefact of coverage cannot be said. Limited data from Hong Kong (where birds are in habitats other than paddies) also indicate a ‘typical passerine’ breeding season of April–July (Carey *et al.*, 2001). Further afield, in Taiwan, later-nesting birds are less successful because of heavy rains after May (Yuan Hsiao-Wei, 1986). The breeding timing of Lao skylarks in habitats not flooded continuously throughout the wet season (e.g. airport grass) remains unknown.

At sites lacking breeding populations, seasonal patterns differed. Occasional non-singers (and, once at the former, two songsters) visited Nahai–Dongphosi and Xiangkhouan Mekong dry channel in the breeding season (Table I). Boeung That Louang (Fig. 1c) was one of only two study sites where irrigated multi-crop rice predominated; for this, water levels are manipulated artificially all year. Many birds, mostly songsters, occurred during the short dry-land interval between harvest and replanting, in October–January. Each individual field was a dry stubble only for a few weeks: the harvest and replanting (= re-flooding) times varied between fields. No larks were found during February–April, when the area was nearly fully re-flooded. There was no evidence of successful breeding there; instead, it seems the birds set up territory when fields were dry, and the area looked propitious for breeding, but then had to leave when the water rose. At the other site, Nong Xuam, cultivation was even more intensive and no skylarks were recorded.

Two other study sites had odd records in May and November, the end and beginning of the breeding season, perhaps suggesting movement on some scale at these times. There was no strong evidence of long distance movement: the species is presumably a diurnal, readily detectable, over-head migrant (as is Eurasian Skylark, e.g. Donald, 2004), and the few seen over the study sites, contrasted with regular records of diurnal migrants such as pipits *Anthus*, wagtails *Motacilla*, white-eyes *Zosterops*, minivets *Pericrocotus*, drongoes *Dicrurus* and hirundines *Riparia* and *Hirundo*. The paucity of records in June–September does not necessarily indicate absence; post-breeding larks undergo a complete moult and Eurasian Skylarks are then rarely found by standard bird-watching techniques (D. L. Buckingham *in litt.*, 2004). Delacour (1929) assumed that Oriental Skylark was, at least in part, a migrant to Indochina, but the period of presence (October–April, Delacour & Jabouille, 1925a; or October–May, Delacour & Jabouille, 1925b) perfectly reflects today’s period when the larks are readily found, and he soon (in Delacour & Jabouille, 1931) changed his assessment to resident. This was confirmed by Engelbach (1938), who collected a series during the missing months (June–September) in Cambodia. In year-round censuses at Kai Tak airfield, Hong Kong (Melville 1980), counts dropped sharply in late April, bottoming in August–September (at c. 25% of the winter–spring peak) and rose rapidly in November, a pattern interpreted by Carey *et al.* (2001) to reflect real numbers, with no allowance for varying detectability with season.

SPECULATIONS UPON PAST STATUS IN LAOS

The late discovery of Oriental Skylark in Laos begs explanation. Most of the 67 bird species new to Laos found in 1992–1999 can safely be assumed to have been overlooked previously (Duckworth, 2006). Although the lark was not found until the sixth year of the 1990s surveys and is locally common around the capital city, it could well have escaped detection during 1992–1996 because surveys focussed on forests and surveyors did little leisure birding: in the first, second and third years, only 71, ten and 65 species were noted in Vientiane (Thewlis *et al.*, 1996, Evans & Timmins, 1998, Duckworth *et al.*, 1998a), whereas such species totals are easily surpassed in a single day at the right season. Also, the lark is very rare at the sites (mainly the city-centre Mekong bank) which hosted most of such leisure birding as did occur.

More perplexing is the lack of records during 1910–1950, an era of various bird collecting expeditions with two bird-studying European residents: P. Engelbach (1932) in south Laos and A. David-Beaulieu (1944, 1948, 1949–1950) in Xiangkhouang and Savannakhet provinces.

Neither ever lived in Vientiane, but David-Beaulieu (1944, 1948) visited Ban Latsen frequently without noting skylarks. The fairly extensive observation and collecting in the upper Lao–Thai Mekong by, e.g. Delacour & Greenway (1940) and Deignan (1945, 1963) did not record the species, although it is now known from both countries’ plains (Lekagul & Round, 1991, Duckworth *et al.*, 2002) in the areas of historical coverage. In several years in Vientiane both in the 1960s and early 1980s, W. W. Thomas found no skylarks (Duckworth & Tizard, 2003); he would not have overlooked them, having earlier expanded known Cambodian distribution to nearly all provinces (Thomas & Poole, 2003). Oriental Skylark’s song strongly resembles Eurasian Skylark’s and so should presumably have been picked up by any European. Genuine historical absence from Laos is suggested by the foregoing and was invoked by Evans (2001) for another non-forest passerine now widespread on the Mekong plain (but in entirely different habitats) Bright-headed Cisticola *Cisticola exilis*. It can, however, scarcely be countenanced for the lark: historically, it was found in neighbouring areas to the south-west (around Bangkok, Thailand; Herbert, 1923), south (Siem Reap and south-east Cambodia; Engelbach, 1938, 1940), east (Quangtri, Danang [=Tourane] and Hué; all in Annam; Delacour & Jabouille, 1925a, 1925b, 1927, Delacour *et al.*, 1928), north-east (Halong Bay, Tonkin; Delacour, 1930) and north-west (southern Shan States, Myanmar; Bingham and Thompson, 1901, Rippon, 1901). As with Laos, there was also a gap in historical records in much of Thailand; Deignan (1963) traced no Thai record significantly north of Bangkok, and the first such record appears to be from Phayao (a little south of Chiang Rai) on 16 January 1982, in which year two specimens were also collected from Chiang Mai airport (P.D. Round *in litt.*, 2006). Rain-fed single-crop rice paddies have been the mainstay of Lao agriculture for centuries (Stuart-Fox, 1997), with sufficient time for thousands of varieties of rice to evolve (Appa Rao *et al.*, 2002): Laos has surely had sufficient skylark habitat for a very long time.

CONSERVATION CONSIDERATIONS

These observations suggest that, in Laos, Oriental Skylark is a level-ground, although not necessarily lowland, species, with much of the population reliant upon single-annual-crop rain-fed paddies near permanent wetlands. This will lead to national population declines, probably severe ones. The current trend for paddy intensification through multiple-cropping is partly achieved through converting (semi-) natural wetlands to storage pools feeding an irrigation network to allow year-round rice cultivation over a wide area. By 2003–2005, this had occurred in at least parts of all six study sites with paddy, and the two sites fully converted did not support breeding larks. Such intensification is also occurring around Pakxan (where skylarks also occur), and across the Mekong plain of Laos. Given the central role of rice self-sufficiency in the national economy (NGPES, 2004), trends in adjacent Thailand (see Wolstencroft *et al.*, 1993, Round, 2002), and the ‘green revolution’ of rice intensification across much of Asia (e.g. Evenson & Gollin, 2003), now belatedly reshaping Laos (IRRI, 2006), it seems certain that most or all of the prime Lao skylark agricultural habitat is likely to be lost. Over the large areas of paddy far from permanent wetlands, dry-season irrigation will be challenging, and hence delayed or not undertaken, but such areas seem not to support the species. Hence, skylarks in Laos may become restricted to small, dispersed, habitats such as airports and grazed grassy wetland margins. It is unclear whether these in isolation could support viable populations, especially because domestic bovinds are rapidly being replaced by hand tractors, which do not need marsh pastures in which to graze. Agricultural intensification is also proceeding apace around the Great Lake of Tonle Sap, Cambodia, and despite the vast areas of suitable habitat remaining for skylarks even into this century, it is likely that within a few more years most such land will have been converted (Evans *et al.*, 2005).

Concern has been expressed for the species in other countries, but no supporting data seem yet to have been presented. Alström (2004) speculated that the species has “probably” decreased substantially, through habitat loss, in much of China. Round (2002) associated at least 10 pairs specifically with a few hectares of dry-season rice stubble which remained amid a sea of irrigated year-round rice cultivation in Chiang Mai province, a pattern typical of nor-

thern Thailand. Round & Gardner (in press) stated that in the central plains of Thailand “it has declined greatly ... and has been lost from those areas where single cropping of rice has been supplanted by irrigated, multi-cropped rice”. As well as cropping patterns, intensification also brings increased agrochemical usage (Czech & Parsons, 2002), sometimes to very high concentrations of pesticides (e.g., Pingali & Roger, 1995; Abdullah *et al.*, 1997) By analogy with European farmland birds (e.g. Aebischer *et al.*, 2000), these chemicals may have severe effects on Oriental Skylark, but no specific information is available.

In China, Oriental Skylark has long been kept as a cage-bird, and it is still common in bird-shops (Carey *et al.*, 2001 and references therein). By contrast, in Vientiane no skylarks were recorded in hundreds of caged native landbirds counted in 2003–2005 (author’s own data) and no correspondent recalls seeing one. All small birds are harvested as available for rural food across Laos, and doubtless some larks are caught. During the territorial season, their habits (not flocking; not roosting at a prominent, predictable site; not feeding at fruiting trees or other hotspots) surely effectively protect them from being targeted. Although no groups larger than 3–5 were found (reflecting families or temporary chasing between territorial adults) during the breeding season, given the dearth of non-breeding season records from Laos, it is possible that flocks might form during June–October. Such flocks might be highly vulnerable to trapping, by analogy with buntings (e.g. Chan 2004).

Further information on Oriental Skylark in Laos, particularly concerning breeding habitat over a wider area (specifically: use of paddy stubbles far from permanent waterbodies), wet-season habitat use and distribution, and overall national distribution, is needed. If after adequate survey no sizeable breeding populations can be found outside rain-fed wetland-margin paddies, the species would fit the criteria for ‘At Risk in Laos’ (see Duckworth *et al.* 1999). Laos is a tiny part of the species’s world range and hence this is not an issue of global priority, but it does deserve high profile in any regional undertaking related to farmland birds. Very little information is yet available on birds of South-east Asian rice fields (Czech & Parsons, 2002), with an earlier study of the animals of Lao rice-fields (Heckman, 1974) listing only one species of bird. Given the changes in bird populations that have occurred with agricultural intensification in Europe (e.g. Aebischer *et al.*, 2000), the demonstrated importance of traditional paddies to birds in India (Dhindsa & Sani, 1994; Dhindsa *et al.*, 1998; Borad *et al.*, 2000; Sundar, 2006), and repeated calls for world agriculture to take greater heed of long-term sustainability (Pimental *et al.*, 1992; McNeely & Scherr, 2001) it is a high priority to establish a much better baseline than currently exists on the use by birds of low-intensity farmland in South-east Asia. With ongoing agricultural change, the opportunities to gather such data are rapidly declining, even in Laos, Cambodia and Myanmar, the three countries retaining the highest proportion of agricultural land under traditional farming styles.

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