The Author of this management guideline is looking for anyone who may be interested in taking on & updating this document as required. Any person interested in this task please e-mail avianrearing@googlemail.com for further details.

MANAGEMENT OF

LAUGHINGTHRUSHES

IN CAPTIVITY

DAVE COLES

2nd Edition
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INTRODUCTION

Laughingthrushes are popular aviary birds and it is most unlikely that they have not been represented in many public and private collections at some time or other. Over the years a number of species have become available and several aviculturists are now keeping an increasing variety of species. Very few public collections have specialised in laughingthrushes and only San Diego Zoo and Beale Park have kept and bred them in some numbers.

These notes reflect the experiences of many keepers and it has been the intention of the author, whose personal experience with the family covers twenty-three species, to bring all known information about this group in captivity together under one cover. It has been voiced that notes on the family in the wild should be included but as there is one, possibly two books rumoured to be in the process of publication that will cover laughingthrushes, amongst other species, in some detail, it has been decided to keep references to their wild biology to a minimum and include it only under the relevant section. These proposed publications are liable to cover the subject much better than I can hope to achieve. I have, however, included a Checklist of Species and a list of those causing possible conservation concerns, some of which are held in captivity.

It is my intention to keep these notes as up-to-date as possible with new information being made available on a regular basis. With this in mind, a website has been created to facilitate this and to promote my other publications and their up-dates.

If you have additional information on laughingthrushes, please let me know so I can keep information as comprehensive as possible.

Dave Coles
September 2007

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CHECKLIST OF THE GENUS **GARRULAX**

The classification of the genus *Garrulax* remains open to much conjecture and further research is still needed to sort out exact relationships. For the purpose of these notes the most recent edition (3rd) of Howard and Moore (2003) is used as a reference source for classification. The radical changes brought about by the DNA in the classification of birds seems not to be followed by all authors either because it is unreliable or interpretations of results are different. Whatever the cause, the latest checklist has a more traditional look about it and once again *Garrulax* is included within the babbler group, the *Timalidae*.

Two members of *Liocichla*, *L. omeiensis* and *L. phoenicea* are also known as laughingthrushes in some older literature while *L. phoenicea* was occasionally placed within *Garrulax* by some authors.

The recent radical changes in classification brought about by DNA relationships as adopted by Monroe and Sibley, place laughingthrushes in *Sylvidae*. Other authors (e.g. Wells, 1998) still follow pre-DNA classification. The layout of the Checklist of *Garrulax* follows Howard and Moore.

**LEGEND**

* Signifies species and subspecies held in the skin collection at the Natural History Museum, Tring, Hertfordshire, UK.

Underlining indicates a subspecies that is sufficiently distinct from other subspecies of the same species that are familiar in captivity as to cause confusion. This is applicable in only two cases (as at 1/9/2007), the Sumatran race of the White-crested *G. l. bicolor*, which has very little white plumage and is much darker than the nominate form, and the Hainan race of the Black-throated *G. c. monachus*, often referred to as the Black-faced, which lacks the white cheek patches but which, until recent imports of the nominate race, was the more frequently seen subspecies.

Bracketed subspecific names are those used at Tring.

All common names found, both in aviculture and in ornithology, have been given to help identify the species in the first instance. Those in common avicultural use are given first. Many species have previously been called Jay Thrush, both in avicultural and ornithological literature but laughingthrush is now universally used and consequently is adopted throughout.

Those species given in **BOLD** are known to have been represented in UK aviculture during the period 1995-2007.

Numbers refer to Books with Colour Illustrations as listed after Species Checklist on pages 12-13.
SPECIES

ASHY-HEADED LAUGHINGTHRUSH
1,15,16,20

*Garrulax cinereifrons* SW Sri Lanka

SUNDA, GREY AND BROWN or CATBIRD LAUGHINGTHRUSH
3,16

*Garrulax palliatus palliatus* W Sumatra
*Garrulax palliatus schistochlamys* N Borneo

RUFOUS-FRONTED or RED-FRONTED LAUGHINGTHRUSH
3,16,20

*Garrulax rufifrons rufifrons* W Java
*Garrulax rufifrons slamatensis* Java

MASKED, BLACK-FACED or SPECTACLED LAUGHINGTHRUSH
(2),4,11,13,16,18,21

*Garrulax perspicillatus* C & S China, N Vietnam

WHITE-THROATED or COLLARED LAUGHINGTHRUSH
1,4-6,10,13,15,16,21

*Garrulax albogularis albogularis* E Himalayas, Bhutan
*Garrulax albogularis whistleri* Pakistan, W Himalayas, NW India
*Garrulax albogularis eous* SE Sikang, SW China, NW Vietnam
*Garrulax albogularis ruficeps* Taiwan

WHITE-CRESTED LAUGHINGTHRUSH
1,(2),4-6,12,13,15,16,21
3(bicolor), 7-belangeri

*Garrulax leucolophus leucolophus* Himalayas, N Assam
*Garrulax leucolophus pataicus (hardwickii)* S Assam, W Myanmar
*Garrulax leucolophus belangeri* S Myanmar, SW Thailand
*Garrulax leucolophus diardi* SE Myanmar, Thailand, Yunnan, Indochina
*Garrulax leucolophus bicolor* W Sumatra

LESSER NECKLACED, NECKLACED, BLACK -NECKLACED or BLACK -NECKED LAUGHINGTHRUSH
1,(2),4-6,12,15,16,21

*Garrulax monileger monileger* E Himalayas, NE Myanmar
*Garrulax monileger badius* Mishmi Hills (NE Assam)
*Garrulax monileger stuarti* SE Myanmar, NW Thailand
*Garrulax monileger fuscatius* SW Thailand
Garrulax monileger mouhoti*  
SE Thailand, S Indochina
Garrulax monileger pasquieri*  
C Vietnam
Garrulax monileger schauenseei*  
E Myanmar, NE Thailand, N Laos
Garrulax monileger tonkinensis*  
Kwangsi, N Vietnam
Garrulax monileger melli*  
Kwangtung to Anhwei (SE China)
Garrulax monileger schmackeri*  
Hainan Island

**GREATER NECKLACED, LARGE NECKLACED, NECKLACED, BLACK-GORGETED or GORGETED LAUGHINGTHRUSH**

1,(2),4-7,12,21
11(*robini*)

Garrulax pectoralis pectoralis*  
Nepal
Garrulax pectoralis melanotis*  
E Himalayas, Assam, N Myanmar
Garrulax pectoralis pingi  
C yunnan
Garrulax pectoralis subfusus*  
SE Myanmar, W Thailand, NW Laos
Garrulax pectoralis robini*  
NW Laos, N Vietnam
Garrulax pectoralis picticollis*  
Kwangtung to Anhwei (SE China)
Garrulax pectoralis semitorquatus*  
Hainan Island

**BLACK LAUGHINGTHRUSH**

3,16,21

Garrulax lugubris*  
Malaysia, W Sumatra
Garrulax calvus*  
NE Borneo

**STRIATED LAUGHINGTHRUSH**

1,4-6,16,21
9(*sikkimensis*), 15(*vibrex*)
15(*cranbrooki*)

Garrulax striatus striatus*  
NW Himalayas
Garrulax striatus vibrex*  
C Himalayas
Garrulax striatus sikkimensis*  
Sikkim, E Himalayas
Garrulax striatus cranbrook(*austeni, brahmaputra*)*  
Bhutan, Assam, N & W Myanmar

**TICKELL’S, WHITE-NECKED, BROWN-HEADED or BROWN-BREASTED LAUGHINGTHRUSH**

(2),12,16,21
21(*ferrarius*)

Garrulax strepitans strepitans*  
E & S Myanmar, W Thailand, NW Laos
Garrulax strepitans ferrarius  
SE Thailand

**BLACK-HOODED, MILLET’S OR VIETNAM LAUGHINGTHRUSH**

(2),8,11,16,20,21

Garrulax milleti milleti*  
S Vietnam
Garrulax milleti sweeti  
SC Vietnam, SE Laos
GREY or MAES’ LAUGHINGTHRUSH
(2),4,11,16,21
11(varenni), 21(castanotis)

Garrulax maesi maesi* Kwangsi, N Vietnam
Garrulax maesi grahami SE Sikang, SW China
Garrulax maesi varennei* NE & C Laos
Garrulax maesi castanotis* Hainan Island

RUFOUS-NECKED LAUGHINGTHRUSH
1,5,6,15,16,21

Garrulax ruficollis* E Himalayas, NE Borneo

CHESTNUT-BACKED or OGLE’S LAUGHINGTHRUSH
1,15,16,21

Garrulax nuchalis* NE Assam, N Myanmar

BLACK-THROATED or CHINESE LAUGHINGTHRUSH
(2),4,12,13,16,21
4(chinensis), 11(germaini), 7(propinquus)

Garrulax chinensis chinensis* S China, NE Indochina
Garrulax chinensis lochmius* SW Yunnan, SE Myanmar, N Thailand, N Laos
Garrulax chinensis germaini* S Vietnam
Garrulax chinensis propinquus* S Myanmar, SW Thailand
Garrulax chinensis monachus* Hainan Island

WHITE-CHEEKED LAUGHINGTHRUSH
8,11,16,21

Garrulax vassali* S Indochina

YELLOW-THROATED, YELLOW-BELLIED, AUSTEN’S or COURTOIS’ (courtoisi) LAUGHINGTHRUSH
1,4,13,15,16,21
4,16(courtoisi)

Garrulax galbanus galbanus* SE Assam, W China
Garrulax galbanus courtoisi NE Kiangsi
Garrulax galbanus simaeoensis* China

WYNAAD or RUFOUS-VENTED LAUGHINGTHRUSH
1,2,6,9

Garrulax delesserti* SW India
RUFOUS-VENTED, YELLOW-BREASTED OR MCCLELLAND’S LAUGHINGTHRUSH

1,11,21

_Garrulax gularis_*

Bhutan, Assam, N Myanmar, N Laos

DAVID’S, PÉRE DAVID’S, PLAIN or PEKING LAUGHINGTHRUSH. PLAIN or PEKING HILL-BABBLER

4,16

_Garrulax davidi davidi*_

N China, S Mongolia

_Garrulax davidi chinganicus*_

N Manchuria

_Garrulax davidi experrectus*_

N Kansu

_Garrulax davidi concolor*_

NW Szechwan

SNOWY-CHEEKED, BLACK-FACED, BLACK-FRONTED or SUKATCHEV’S LAUGHINGTHRUSH. BLACK-FRONTED HILL BABBLER

4,16

_Garrulax sukatschewi*_

S Kansu

MOUSTACHED, ASHY or BLACK-CAPPED LAUGHINGTHRUSH

1,4,15,16,21

_Garrulax cineraceus cineraceus*_

S Assam, W Myanmar

_Garrulax cineraceus strenuus(styanni)*

NE Myanmar, SW China

_Garrulax cineraceus cinereiceps*_

C & SE China

RUFOUS-CHINNED LAUGHINGTHRUSH

1,5,6,11,16,21

9(rufogularis), 15(occidentalis)

_Garrulax rufogularis rufogularis*_

E Himalayas, N Assam

_Garrulax rufogularis occidentalis*_

Pakistan, W Himalayas, W Nepal

_Garrulax rufogularis assamensis*

NE Assam

_Garrulax rufogularis rufitinctus*

S Assam

_Garrulax rufogularis rufiberbis*

N Myanmar

_Garrulax rufogularis intensior*_

N Vietnam

CHESTNUT-EARED LAUGHINGTHRUSH

19

_Garrulax konkakinhensis*

Cai Lai Province, N Vietnam

BARRED or BAR-BACKED LAUGHINGTHRUSH

4,13,16

_Garrulax lunulatus lunulatus_*

S Kansu, S Shensi

_Garrulax lunulatus liangshanensis*

SW Sichuan
WHITE-SPECKLED or BIET’S LAUGHINGTHRUSH

*Garrulax bieti*

SE Sikang, W Szechwan

GIANT LAUGHINGTHRUSH

*Garrulax maximus*

W China, SE Tibet

SPOTTED or WHITE-SPOTTED LAUGHINGTHRUSH

*Garrulax ocellatus ocellatus* E Himalayas, S Tibet

*Garrulax ocellatus griseicauda* W Himalayas

*Garrulax ocellatus maculipectus* NW Yunnan, NE Myanmar

*Garrulax ocellatus artemisiae* SW Szechwan, E Sikang

GREY-SIDED LAUGHINGTHRUSH

*Garrulax caerulatus caerulatus* E Himalayas

*Garrulax caerulatus subcaerulatus* S Assam

*Garrulax caerulatus livingstone* E Assam, NW Myanmar

*Garrulax caerulatus kaurensis* N Myanmar

*Garrulax caerulatus latifrons* W Yunnan, NE Myanmar

RUFOUS, RUSTY, SCALY-CROWNED or SCALY-HEADED LAUGHINGTHRUSH

*Garrulax poecilorhynchus poecilorhynchus* Taiwan

*Garrulax poecilorhynchus ricinus* S Yunnan

*Garrulax poecilorhynchus berthemyi* NW Fokien

CHESTNUT-CAPPED LAUGHINGTHRUSH

*Garrulax mitratus mitratus* W Sumatra

*Garrulax mitratus major* C Malaysia

*Garrulax mitratus damnatus* E Sarawak

*Garrulax mitratus griswoldi* C Borneo

*Garrulax mitratus treacheri* N Borneo

SPOT-BREASTED LAUGHINGTHRUSH

*Garrulax merulinus merulinus* W Yunnan, N Myanmar, S Assam

*Garrulax merulinus obscurus* SE Yunnan, N Indochina
**Garrulax merulinus annamensis**  
S Vietnam  
**HWAMEI, HWA-MEI, HWA-MAE, HOAMI, MELODIOUS, BROWN or SPECTACLED LAUGHINGTHRUSH. CHINESE THRUSH**  
(2),4,13,16,21

**Garrulax canorus canorus**  
S China, N Indochina  
**Garrulax canorus oustoni**  
Hainan Island  
**Garrulax canorus taewanus**  
Taiwan

**WHITE-BROWED or WHITE-CHEEKED LAUGHINGTHRUSH**  
1,(2),4,7,12,13,15,16,21

**Garrulax sannio sannio**  
N Vietnam, S China  
**Garrulax sannio albosuperciliaris**  
E Assam  
**Garrulax sannio comis**  
Yunnan, SE Sikang, NE Myanmar  
**Garrulax sannio oblectans**  
SW China

**RUFOUS-BREASTED, NILGIRI, NILGIRI WHITE-BREASTED or TRANSCORE LAUGHINGTHRUSH**  
1,15,16,17,20

**Garrulax cachinnans**  
Nilgiri Hills, W Madras

**GREY-BREASTED, WHITE-BREASTED, KERALA or JERDON´S LAUGHINGTHRUSH**  
1,16: 15(jerdoni) 9,15(meridionalis, fairbanki)

**Garrulax jerdoni jerdoni**  
Coorg, W Mysore  
**Garrulax jerdoni fairbanki**  
Palni Hills, S India  
**Garrulax jerdoni meridionalis**  
S Kerala, SW India

**STREAKED, HIMALAYAN or HIMALAYAN STREAKED LAUGHINGTHRUSH**  
1,4-6,16 9,15(lineatus), 15(imbricatus)

**Garrulax lineatus lineatus**  
W Himalayas  
**Garrulax lineatus bilkevitchi**  
Tadzhikistan, NW Pakistan  
**Garrulax lineatus gilgit**  
NE Pakistan  
**Garrulax lineatus setafer**  
Sikkim, Nepal, W Bengal  
**Garrulax lineatus imbricatus**  
Bhutan, SE Tibet  
**Garrulax lineatus schachdarensis**  
Badakhshan Mts, Western Pamir, Russia

**STRIPED, STREAKED, MANIPUR or MANIPUR STREAKED LAUGHINGTHRUSH**  
1,15,16,21

**Garrulax virgatus**  
S Assam, SW Myanmar
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<td>Garrulax variegatus variegatus* W Himalayas, Garrulax variegatus similis* Pakistan, NW India</td>
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<td><strong>BROWN-CAPPED, AUSTEN’S, GODWIN-AUSTEN’S or CACHAR LAUGHINGTHRUSH</strong></td>
<td>1,15,16,21, 9(austeni)</td>
<td>Garrulax austeni austeni* S Assam, Garrulax austeni victoriae* N Myanmar</td>
</tr>
<tr>
<td><strong>BLUE-WINGED LAUGHINGTHRUSH</strong></td>
<td>1,(2),4-6,9,11,15,16,21</td>
<td>Garrulax squamatus* E Himalayas, Myanmar, Assam, SW China</td>
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<td><strong>SCALED, SCALY or PLAIN-COLOURED LAUGHINGTHRUSH</strong></td>
<td>1,4,5,6,11,13,15,16,21, 9(subunicolor)</td>
<td>Garrulax subunicolor subunicolor* E Himalayas, E Assam, Garrulax subunicolor griseatus NE Myanmar, NW Yunnan, Garrulax subunicolor fooksi* NW Vietnam</td>
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<tr>
<td><strong>ELLIOIT’S LAUGHINGTHRUSH</strong></td>
<td>4,16</td>
<td>Garrulax elliotti elliotti* C &amp; SW China, Garrulax elliotti prjevalskii* Kansu, E Tsinghai</td>
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<td><strong>PRINCE HENRY’S, PRINCE d’ORLEAN’S or BROWN-CHEEKED LAUGHINGTHRUSH</strong></td>
<td>1,4,16</td>
<td>Garrulax henrici* SE Tibet, SW Sikang, Garrulax henrici gucenensis Qando area, SE Xizang</td>
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<td><strong>BLACK-FACED or WHITE-BEAERED LAUGHINGTHRUSH</strong></td>
<td>1,4,6,13,16,21, 5(bethelae), 11(saturatus)</td>
<td>Garrulax affinis affinis* W &amp; C Nepal, Garrulax affinis bethelae* E Himalayas, Garrulax affinis oustaleti* NE Assam, SW Sikang, N Myanmar, NW Yunnan, Garrulax affinis muliensis* NW Yunnan, SE Sikang, Garrulax affinis blythii* SW Szechwan, E Sikang</td>
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**Garrulax affinis saturatus**  
N Vietnam  
WHITE-WHISKERED, TAIWAN, FORMOSAN or MOUNT MORRISON’S LAUGHINGTHRUSH  
4,10,16

**Garrulax morrisonianus***  
Taiwan

**RED-HEADED, CHESTNUT-CAPPED, CHESTNUT-CROWNED or GREEN-WINGED LAUGHINGTHRUSH**  
1,2,4-6,12,14,16,21  
11(connectens) 1,9,15(nigrimentus)  
15(erythrocephalus, chrysopterus)

**Garrulax erythrocephalus erythrocephalus***  
W Himalayas

**Garrulax erythrocephalus kali***  
W & C Nepal

**Garrulax erythrocephalus nigrimentum***  
Sikkim, Bhutan

**Garrulax erythrocephalus imprudens***  
NE Assam

**Garrulax erythrocephalus chrysopterus***  
S Assam

**Garrulax erythrocephalus godwini***  
SE Assam

**Garrulax erythrocephalus erytholaema**  
(holerythrops)*  
E Manipur, SW Myanmar

**Garrulax erythrocephalus woodi(forresti)***  
NE Myanmar, SW Yunnan

**Garrulax erythrocephalus connectens**  
N Indochina

**Garrulax erythrocephalus subconnectens**  
NW Thailand

**Garrulax erythrocephalus schistaceus(shanus)***  
E Myanmar, NW Thailand

**Garrulax erythrocephalus melanostigma**  
SE Myanmar, NW Thailand

**Garrulax erythrocephalus ramsayi**  
S Myanmar

**Garrulax erythrocephalus peninsulae**  
S Thailand, N Malaysia

**GOLDEN-WINGED LAUGHINGTHRUSH**  
14,21

**Garrulax ngoclinhensis***  
W Vietnam

**COLLARED or YERSIN’S LAUGHINGTHRUSH**  
8,11,14,16,21

**Garrulax yersini***  
S Vietnam

**RED-WINGED, CRIMSON-WINGED or EXQUISITE LAUGHINGTHRUSH**  
4,13,16,21  
11(greenwayi)

**Garrulax formosus formosus***  
SW Szechwan, NE Yunnan

**Garrulax formosus greenwayi***  
NW Vietnam

**RED-TAILED LAUGHINGTHRUSH**  
2,4,11-13,16,21

**Garrulax milnei milnei***  
NW Fokien

**Garrulax milnei sharpei***  
E Myanmar, Yunnan, NW Thailand, N Indochina

**Garrulax milnei vitryi***  
S Laos
An effort has been made to locate illustrations in easily accessible books for those who are not able to travel to the Natural History Museum at Tring to make a positive identification. A numerical citation is given below each common name where one has been found. Those given in brackets refer to black and white illustrations. The quality of the illustrations varies quite considerably but those marked with an asterisk are of a reasonably high standard.


Laughingthrushes are exceedingly active birds. As such, they are unsuitable subjects for keeping in cages for any length of time. Newly imported birds will benefit from the extra room a small aviary will provide, even if confined to smaller inside quarters at night and during periods of inclement weather. Individuals recovering from illness will also benefit from the extra room a large flight cage, or aviary, will offer, providing extra attention is given to their special needs at this susceptible time.

AVIARY CONSTRUCTION MATERIALS

No special frame construction material is needed. The basic frame can be made from timber, either 50 mm x 50 mm for smaller aviaries or 75 mm x 75 mm for larger constructions. Large walk-through enclosures now present in many zoos are a specialist project and will not be described here.

While an inch aperture, of either heavy duty wire netting or welded mesh will contain laughingthrushes, consideration must be given as to too what might get in! Mice, young rats and weasels can all squeeze through inch mesh and it is quite alarming to watch the ease with which weasels can run through it. If weasels are a problem, a medium gauge ½ inch wire netting or 16 gauge welded mesh is best suited as a covering, although 1 x ½ inch welded mesh is adequate, especially if a check is kept for damage. Inch square mesh can be used but a very careful check needs to be kept for vermin, which should be dealt with accordingly once suspected!
DIMENSIONS

Small aviaries (2 m x 1 m x 2 m high) have been used by some aviculturists but are not recommended. The general principal of providing as large an enclosure as possible should be applied. Especially so as laughingthrushes can be mixed with other suitable species. Most aviaries at Beale Park were 2 m high and 4 m wide with lengths ranging between 4 to 6 m. These mostly held one breeding pair of laughingthrushes each with other, generally non-competing species. Several enclosures are given over to single sex populations of varying numbers.

Groups of four to six Red-winged Laughingthrushes were kept in much larger enclosures at San Diego Zoo (Lieberman). The largest aviary was some 10,800 square metres where the birds were kept with a number of other Southeast Asian birds. This same collection also kept seven species in a heavily planted aviary measuring 44 m x 33 m x 12 m and succeeded in hatching chicks from five, although no data is given as to whether they were hatched during the same period or what success was achieved (Mace 1991).

If solitary pairs are kept, then 3 m x 2 m x 2 m should be the minimum for a heavily planted aviary.

BOUNDARY

Aviary divisions need to be nothing other than normal wire netting as there seems to be no aggression between pairs in adjacent aviaries, even when young are present. The only time of possible conflict is likely to be if chicks sit close at either side of the partition, although this has not occurred in published records. I would expect either, or both young to flutter away, defusing any likelihood of a problem. Where nesting has occurred close to a partition, as would be expected, pairs in adjacent enclosures have built their nests in another location, well away from any potential conflict area.

Where glass is used as an aviary division, precautions need to be implemented before birds are introduced. Perhaps the best method is to use a chalk-based window cleaner and completely cover the glass. Left in place for a week or so to allow new birds to become accustomed to a barrier, the chalky coating can be given a light dusting over with a cloth to remove some but not all of it. Repeat the process every couple of days to remove more until it is finally clear some two weeks after introducing the birds. Removal of the barrier by gradually increasing the amount of clear glass is another option but this method allows windows of transparency through which birds may attempt to fly. From experience, the author recommends the former procedure.

When catching up any occupant of an aviary with glass, it is advisable to repeat the above chalk-base coating technique which can be removed immediately once catching has been effected.

WEATHER PROTECTION

By and large, laughingthrushes are hardy birds and tolerant of extremes in temperature but by preference a little heat should be offered in conditions of extreme cold where temperatures are likely to fall below –10 °C as it did in the winters of 1995/6 and 1996/7. Although able to withstand quite severe weather, it makes life a little more comfortable and controlled temperatures need not be more than of a degree or two above freezing, unless the
birds are recent imports and not fully acclimatised. All newly imported birds should be offered sensible conditions of heat and shelter during their first winter.

It is fair to state, that given the opportunity to roost outside, laughingthrushes will do so without hesitation. However, a shed or similar should adjoin any aviary and be available for the birds to use should they desire. Because of their reluctance to roost indoors, planting several dense shrubs in the aviary or covering an area of the roof with corrugated plastic sheeting, placing several perches high beneath it, will help.

Birds soon learn to use pop-holes into a shed, even those placed low down and after a couple of days, soon become used to being shut in if considered desirable, especially if some foliage (cut pieces of fir placed in a top corner) is provided for them to hide amongst.

Additional lighting can be given to extend feeding time. The minimum daylight length in southern England is adequate, even in winter, but the further north birds are kept, the more consideration should be given to extending day-length by means of artificial light. With colder temperatures and even shorter days, winter is likely to be the time any management techniques are tested. If providing heat and/or light in a shelter, as stated previously, birds will need to be chivvied in as even in very severe weather, they are still likely to prefer to remain outside!

SUBSTRATE

Laughingthrushes are busy birds, always poking about the aviary floor and amongst vegetation. Aviary substrate can be soil, leaf litter (either leaf drop from within the aviary or provided from outside), grass, wood chips, forest bark or any other material which looks natural and provides them with interest. Indoor shelters can have a covering of wood shavings or sharp sand on a concrete base, preferably the latter as less dust is created, which is better for both birds and keepers!

Some individuals are prone to overgrown beaks and providing ample probing material of an abrasive nature helps keep them in trim. Toe nails usually are not a problem, but like beaks, if they do start to grow, they will constantly need attention and again will benefit from an area of an abrasive substrate such as sharp sand. Mealworms thrown on it will encourage some vigorous activity.

PLANTING

This section, I would say, is a very important consideration if serious attempts at breeding laughingthrushes are to be contemplated. Man-made nesting receptacles are used but there is little doubt that species which nest naturally in bushes, as opposed to cavity nesters, will benefit greatly from heavily planted enclosures. As the two are intrinsically linked, this section will also cover natural nesting sites. Artificial sites will be described under the appropriate heading in the section devoted to breeding.

The provision of natural vegetation is perhaps the major contributory factor to continued breeding success with this group. Evergreens should be planted where possible as these provide not only cover throughout the year for the birds but allow species that normally nest early, to do so. Firs are ideal but try to avoid forms that don’t hold their shape as they grow - *leylandii* provides quick cover but is of little use for nesting once growing beyond a certain height, although Green (1998) gives *leylandii* as the reason for breeding the Red-winged Laughingthrushes several times. Hewson (2006) had *affinis* nest naturally in *leylandii* one year but following pruning, a basket had to be provided the next. Undoubtedly, it has its uses but a 2 m fir may outgrow its suitability as, unlike shrubs, they cannot be pruned to
retain their shape. If *leylandii* do prove beneficial, perhaps it would be worthwhile to plant another specimen in the aviary so that it is of a suitable size once the original has outgrown its usefulness, or lost its shape. Do not plant too close together as the sides touching will die back and go brown.

Many types of shrubs can be planted to provide shelter and nesting sites but it is very evident from reading through available literature covering this family both in the wild and in captivity, and from personal experiences, that bamboo figures prominently. Beale Park obtained numerous large clumps of the bamboo *Sinarundinacea nitida* from a local plantsman and these were placed in most aviaries, the only exceptions being those that were already heavily planted and had insufficient space. All pairs that bred at Beale Park which had bamboo in the aviary, utilised this plant, despite other suitable shrubs being available. Lieberman (1984) states, in relation to Red-winged Laughingthrushes, that out of choice “it would appear that when available, Golden Bamboo *Phlyostachys aurea* is the nest site of choice”. Eight out of eleven nests were built in the bamboo, two in young Pomelo *Citrus grandis* and the remaining one in a freely attached nest basket. Eggs were laid in eight of the eleven nests but no data is given as to which was used.

Hundgen (pers. comm.) moved a pair of White-crested Laughingthrushes that had been kept at the Bronx Zoo for four years without any sign of nesting activity being witnessed into an adjoining aviary containing bamboo. Five weeks later, nesting commenced and three young were parent-reared from that first nest.

Slow growing species of bamboo may be preferable (P. Stubbs pers. comm.) as faster growing species may outgrow the height of the aviary and once through the wire, most of the leafy growth may be above the aviary roof. However, this had not been a problem encountered at Beale Park were most plants were *Sinarundinacea nitida*, a fast growing species of medium height.

Details of the nesting of Black-throated Laughingthrushes in two completely different types of accommodation at San Diego Zoo are given by Mace (1994). One aviary measured 6 m x 1.2 m x 3 m and was planted with Purple-leafed Plum *Prunus blireiana*, Podocarpus *P. gracilia* and Russian Olive *Elaegnus angustifolia* with nesting taking place in the tallest available plant (species not noted) in a pre-hung wicker basket. The large walk-through aviary (44 m x 33 m x 12 m) was heavily planted and the pair always built their own nests in Golden Bamboo. At the same establishment Mace (1991) records Weeping Bottle-brush *Callistemon viminalis*, Mexican Coral Tree *Erythrina coraloides*, Pygmy Date Palm *Phoenix roebelenii* and Rusty-leaved Fig *Ficus rubiginosa* as being used as nesting sites by a pair of Tickell’s Laughingthrushes.

The only instance I can trace of failure to use bamboo is that given by Coles (1979) who records an attempted nesting by Red-winged Laughingthrushes in bamboo, but the plant was cluttered by the lower branches of an apple tree it grew through and by several metal aviary struts. Although lower and higher parts of the plant were free of obstruction, the preferred nesting height of two to three metres was congested. The pair successfully reared in a dense clump of ivy.

Yellow-throated Laughingthrushes use bamboo but preference may be given to other types as existing records for successful breedings mention a range of species use. Two nests at Beale Park were in bamboo while one was in Laurel - none were successful.

In windy situations where bamboo is not supported there may be too much movement and the birds feel insecure. The tips of each stem of most species that grow outside in temperate regions rarely exceed 12 mm in width and aviary roof netting is the ideal support.

Bamboo occurs naturally in the habitats of many *Garrulax* species in the wild. The camouflage, hence the security it affords, becomes very evident once a nest is discovered in
this grass. Nests are usually situated two to three metres off the ground and additional camouflage is given by the debris caused by the continuous leaf drop from this evergreen grass, which in most instances accumulates at around this height in cobwebs and leaf axils.

There is one main disadvantage with bamboo. It is prone to dying once flowered. Some regeneration may occur but it is generally very short lived. The rather unfortunate situation then multiplies itself in that the demise usually accounts for all bamboo in the same situation. This happened at Beale Park, where the emphasis was placed on bamboo, and all plants in the laughingthrush aviaries were lost at the same time. Interestingly, because so many plants were available at the same time when initially obtained, lack of space necessitated plants being placed in other enclosures. These all survived and have still not flowered some five years later (2003). The only common factor, despite being in different locations around the park, is that the soil appears to be nutritionally inferior to that present in aviaries where die-back has occurred. Plants look healthy and continue to send up new stems but growth had been nowhere near as robust as had been seen previously in the now dead plants. Plants in the wild die after flowering - can their life under cultivation be extended by keeping them ticking over in adequate but comparatively poor growing conditions?

Bamboo is by no means the only plant that will be utilised for nest-building as can be seen from earlier in this section. Box Buxus sempervirens has been utilised at Beale Park several times but it is another plant that soon outgrows itself without adequate pruning. Laurel Prunus laurocerasus has been used also with good success at Beale Park and this is the second most popular nest location. Plants become large, but can be clipped rather than pruned yearly to keep them in shape. They do periodically need a prune, but by growing two plants next to each other, when the time comes, one can be trimmed while the other is pruned. This ensures a nest site is always available.

Most other quick growing, bush-forming shrubs can be planted. Climbers such as honeysuckle and clematis are good, as are most other creepers that can provide thick cover. Wisteria has been used several times (Gibson 1982).

An important factor to consider when planting is to leave one corner of the aviary free of bushes as a convenience when catching up birds.

PERCHING

Most species spend a good deal of time in bushes, only venturing forth for short periods to feed or scratch around on the aviary floor. Consequently, perching for laughing-thrushes need only be minimal. Be sure to leave one corner clear of perches as when planting out, to make catching easier. Inside shelters can have simple stick perching.

WATER PROVISION

Most laughingthrushes are inveterate bathers and will waste no time in taking a dip once water is changed, even in temperatures of -5 °C. It is quite humbling being toged up for the arctic weather conditions and to have a pair of birds waiting nearby for the ice to be removed - jumping in to the fresh water before you are out of the aviary! More importantly, because of this behaviour in some species, any bird that breaks from this routine may be showing the first signs of illness or suffering from the weather and must be checked and carefully watched.

In shelters, even unheated ones, a bowl of water can be placed which may remain ice-free if the temperature is not too many degrees below freezing outside. Placing the bowl
under a perspex roof or beneath a bush may also hinder ice formation. These locations create micro-climates which are a degree or two warmer than exposed areas.

**SUN-BATHING**

Most species skulk and remain in deep shade if conditions become too hot. Sun-bathing is not a favoured pastime with the group as a whole, as it is in some families. However both the Hwamei and Spotted Laughingthrushes are avid sun-bathers, especially the latter. Both adopt a posture similar to that of *Turdus* thrushes.

**MAINTENANCE**

A safety passage or double-door system is useful, especially if the birds are kept in small enclosures - some laughingthrushes are exceedingly quick and are likely to escape at some point in time.

General cleaning out will depend on the numbers of birds and types of species kept. If other inhabitants are seedeaters, the aviaries will need cleaning out less than if other frugivorous species are kept. Either way, it is best to adopt a regime which suits and stick to it. The breeding season may prove a problem for other inhabitants but laughingthrushes are unlikely to be disturbed by someone entering the aviary, although the frequency of cleaning may be decreased by not overcrowding stock.

**LIBERTY**

There are no reports of laughingthrushes enjoying an existence involving total liberty but there are several accounts of partial liberty, usually during the breeding season when either eggs or young are present. Most such accounts involve White-crested Laughingthrushes. Bonstow (1998) tried liberty as a means of providing a wider variety of livefood for his pair of White-crested Laughingthrushes. When young were believed to be several days old, a 30 cm square hatch was made high up in the front of the aviary. Eventually the male was enticed out and after 30 minutes he returned to the top of the aviary with a beak-full of insects. After a short search he soon found the hatch. Both were shut in overnight. Over the ensuing days, both parents spent more and more time outside the aviary collecting food for the chick which eventually fledged at 17 days, from which point, both parents were kept in.

I have a verbal account of a similar situation occurring with a Welsh aviculturist some years ago (A. Owen pers. comm.) where a pair were given their liberty during the breeding season. Over several years they managed to rear an unspecified number of young.

Gibson (1982) momentarily had a female White-crested Laughingthrush at liberty after she had attacked him as he walked out of the aviary and was carried out attached to the back of his neck. She flew to an apple tree but was soon recaptured and re-united with her chicks.

A male White-crested Laughingthrush at Busch Bird Park (Young) remained at liberty for four months. The pair had previously nested for four years and while out, the female built and laid infertile eggs while the male stayed in close proximity, even building a nest himself before being recaptured.

The male of a well-bonded pair of Red-winged Laughingthrushes at Beale Park which had previously laid was recaptured after a very short space of time by cutting a large hole in the aviary roof and catching up the female and placing her in a cage directly beneath the hole. The male soon perched on top of the cage and was chivvied into the pen.
The same procedure was adopted with a male Chestnut-capped Laughingthrush which escaped through a hole in the roof, also at Beale Park. It was not seen for several days after escaping but was heard. After disappearing again it was observed near its mate and as the days passed, spent more and more time in the immediate vicinity. The female was caught from the aviary and placed in a cage beneath a hole cut in the roof. A dish of food was placed directly beneath the hole, resting insecurely between two branches so that if the escapee returned to feed, the dish would fall and, in theory, he would fly horizontally back into the pen rather than vertically back out through the hole. Overnight he entered the aviary and was caught.

Very few non-bonded laughingthrushes that escape remain in the vicinity long enough for any attempt to be made at capturing them.

Importantly it should be noted that the Wildlife and Countryside Act (1981) Section 14 (1) "makes it an offence to release or allow to escape into the wild any animal which is of a kind not ordinarily resident in, and is not a regular visitor to, Great Britain in a wild state". Many other countries have similar laws.

**HEALTH**

As a group, laughingthrushes generally appear to be trouble free and many seem to live a long and healthy life once acclimatised to captive life. Being active birds, their well-being benefits greatly from a large planted aviary with suitable furnishings to keep them busy.

The few post-mortem reports to hand reflect a range of causes of death with no particular malady prominent, although *E. coli* is mentioned in several. A White-crested Laughingthrush at Beale Park was riddled with *E. fergusonii* which caused death.

The early signs of Iron Storage Disease (ISD) were evident in a Yellow-throated Laughingthrush which died at Leeds Castle but this was an old bird, being one of the original imports in the early 1990’s and it may well have been part of the ageing process. The main findings in this bird appeared to relate to an endoparasite infestation. This is the only specimen from the few post-mortems I have that exhibited the condition and it might be an isolated case. However, if diets rely heavily on manufactured softfoods, it might be worth considering one of the low iron diets available. That produced by Witte Molen and obtainable from Rob Harvey Specialist Feeds (Tel. 01420 23986) is reported to contain only 60 parts per million (ppm) of iron (Fowler et. al.), the lowest available.

There is enough evidence to suggest that internal parasites are a problem. At Beale Park, all softbills are wormed twice yearly with Flubenvet powder. Food is given a daily light dusting in February and again in August for a period of ten days, and no problems have been encountered.

Lieberman records the successful treatment of two shipments of Red-winged Laughingthrushes for nematodes, flukes and Coccidia. A nematode was the cause of death in a White-crested Laughingthrush at Chessington World of Adventure, when it perforated the duodenal wall causing peritonitis to set in.

Gibson (1982) obtained two White-crested Laughingthrushes and states “They were found to be riddled with parasites (at least six types) and as there was no cure for all of them, they were placed in quarantine. The worst was Coccidia but after two months it had dropped from a very heavy to a light infestation”. *Capillaria* were also present.

The presence of internal parasites can be checked easily by sending a faecal sample to a specialised bird vet or to a local Veterinary Investigation Centre for analysis. Advice can then be sought on suitable treatment should it be necessary.
DIETARY REQUIREMENTS

BASIC DIET

A whole range of food items can be offered. At Beale Park the basic softfood given is chick crumbs to which finely chopped carrot, cabbage, bread and peanuts are added. Chopped egg is introduced to the softfood about a month before the first of the laughingthrushes start to lay and effectively increases the nutritional content of the diet prior to the breeding season. Chopped pear, apple, banana, grape, tomato and orange are given as is a little soaked crushed Zoo Diet A. All these items are fed in the same bowl and the birds pick through this, selecting favoured items from a diet which also caters for other occupants of the aviary. If grain, pheasant pellets and various small seeds are offered to other birds, many species will consume a quantity, odd birds even competing with pheasants when their daily ration is placed in the aviary, a situation reported at several other collections (Vrettos pers. comm. and Lieberman). Whether the consumption, by passerines, of medicated pheasant feeds is detrimental to fertility, as suggested by some keepers, remains to be determined, although one pair, not averse to pheasant pellets, have reared young at Beale Park. Sunflower seeds are relished by species kept at Harewood Bird Gardens (Stubbs pers. comm.) and were extracted from the kernel by hammering with the beak.

Mead (pers. comm.) also offers defrosted, chopped vegetables from a frozen pack of peas, beans, carrots and sweet corn.

Commercially available invertebrate livefood in the form of mealworms and crickets are given at the onset of the breeding season at Beale Park. Any invertebrate of suitable size entering the aviary will also be taken.

Larger species will take on quite sizeable prey - Spiny Stick Insects Extatosoma tiaratum, mice, hatchling Grass Snakes Natrix natrix and large beetles will be tackled if the opportunity presents itself. A Lesser Necklaced Laughingthrush was observed by Schofield (2001) killing a Common Frog Rana temporalis by repeatedly striking it with blows aimed at the back of the head. The bird standing high on its legs to give it more power on each strike. This is a method adopted by some of the larger Garrulax and is reminiscent of the way some Corvids deal with food.

The diet offered at San Diego Zoo to a group of Red-winged Laughingthrushes (Lieberman) comprised of chopped fruit (apples, oranges, tomatoes, grapes, raisins and papayas), chopped greens (romaine lettuce or spinach), blueberries, moistened protein meal, trout chow, kibbled dog food, mockingbird meal, shrimp meal and Zu Preem Bird of Prey diet. They were offered daily rations of mealworms and crickets. Birds in a large walk-through aviary were seen to take earthworms, moths, crickets, caterpillars and subterranean larvae. Mixed grains and pheasant pellets were also eaten.

Most referenced diets are a variation on a theme and need not be recorded here en masse. The only differences are with local variations of manufactured softfoods and availability of various fruits; livefood seems to be standard mealworms and crickets with buffalo worms, mini mealworms and waxmoth grubs given by some.

The only radical diet offered was that by Gibson (1982) to a pair of White-crested Laughingthrushes. This consisted of bread spread with peanut butter, and rice pudding with chopped cooked chicken offered three or four times a week. A dish of dry food was always present and consisted of either dog chow powder, insectivorous food or chick starter crumb and was only eaten if the birds were really hungry. The hen would eat a few grapes, but neither adult would touch other fruits. No interest was shown in scrambled egg, nor in small
dead chicks or small birds eggs. The last two items were, I think, included to test the theory of whether laughingthrushes will take eggs and young. Although they did not eat those offered by Gibson, certain members of the group will take the eggs of other birds, and it is a practise not to be encouraged.

The necessity for a low iron diet still needs some research. Iron storage disease was not noted in the group until recently. See section covering health for more details.

**SPECIAL DIETARY REQUIREMENTS**

Livefood is needed for the rearing of young but there is some flexibility towards the end of the rearing period - some species will feed fruit and soaked, crushed Diet A from around 10 days and it is undoubtedly of benefit to offer suitable sized pieces of fruit and well moistened crushed Diet A throughout the latter period, if not from the onset. Gibson (1982) noted rice pudding being fed to White-crested Laughingthrush chicks at about six days old.

A bowl of livefood should be kept in the aviary at all times once the young hatch. This is perhaps easier said than done in mixed collections but placing the bowl near the nest may help, as would a little thought as to other aviary occupants - turacos, pheasants, pigeons, finches etc., in other words, non-competing species.

Laughingthrushes will take practically all commercial forms of livefood that are currently available but it is perhaps best to start young off on buffalo worms, mini mealworms and the early instars of both crickets and locusts. Adults very rarely tear food for young, so the larger types available may not be of use until chicks are several days old.

It has been said that providing an ad-lib supply of livefood decreases the begging response of chicks to parents, which may cause them to lose interest in the chicks. Decreasing livefood at 7-10 days was not the policy at Beale Park, mainly because it is felt that as most species exhibit the willingness to nest twice, sometimes three times in a year successfully, adequate livefood is likely to encourage this behaviour. Having said that, many keepers will introduce other items into the diet of young at around this time but livefood is still provided ad-lib at Beale Park until young are well fledged.

A pair of White-browed Laughingthrushes at Harewood Bird Gardens (Stubbs pers. comm.) often refused provided livefood in favour of collecting their own insects that were attracted into the heavily planted aviary.

**METHOD OF FEEDING**

The bulk of the food should be placed in a dish, although many keepers spike fruit on nails. Some birds will take halved pieces of fruit by pecking at it but as a rule it should be chopped. The technique used by some of the larger species is reminiscent of corvids when tackling large food items, in that they grip it in one foot and then proceed to rip it to pieces, either by tearing or stabbing. Rather surprisingly, this procedure is not adopted when feeding young, where food of the appropriate size must be given.

New introductions into an aviary containing established birds can be provided with food scattered on the aviary floor. They are busy birds and will soon pick up food, a useful behaviour if other occupants tend to monopolise feeding stations. Additional feeding points should be provided, either as a temporary measure until birds are settled or to help eliminate any possibility of conflict around feeding sites.
WATER

Water can be given in a bowl or in an artificial pond. Ponds in aviaries can be landscaped which helps them to blend in. Laughingthrushes tend to be enthusiastic bathers in clean water. Consequently, during hot weather, a careful check needs to be kept if the sole source of water is a bowl. Interestingly, cold weather seems to heighten their need to bathe - even at a temperatures of -5 °C some species will bathe when ice is replaced with fresh water. A good preen then usually follows. If individuals acquire this habit they will do so every time water is changed; failure to do so may indicate that there is a problem. Do not be fooled just because the weather is severe! Check if there is a change in behavioural patterns.

SOCIABILITY

BASIC SOCIAL STRUCTURE

In captivity, laughingthrushes are usually maintained in pairs for breeding purposes. However, they may be kept in groups where breeding is not a priority. Groups of up to eleven Red-tailed Laughingthrushes (Coles pers. comm.) have been known to co-exist in a heavily planted aviary. Enclosures need to have sufficient space and vegetation for birds to avoid prolonged contact with each other for in such cases, breeding activity will be negligible or, if it occurs at all, will invariably break down at some point due to interference. A group of five Yellow-throated Laughingthrushes was maintained at Chester Zoo (Wilkinson pers. comm.) in an attempt to coax the species to breed after individual pairs showed little sign of doing so. Eggs were laid on several occasions but were found broken, the cause of which was unknown but presumed to be others within the group. Subsequently, a nest with eggs was found and these were removed to be hatched in an incubator and two birds were successfully hand-reared.

Single species groups are useful if trying to select bonded pairs. Birds need to be colour ringed and a fair amount of time spent observing, although, because of their social nature, two birds that seem paired may not necessarily be a true pair. Surgical or DNA sexing is recommended.

All species bred at Beale Park (16 pairs of 11 species) have been housed in pairs with no other adult laughingthrushes in the same enclosure. This system was also adopted at Harewood Bird Gardens (Stubbs pers. comm.) after recording problems when kept in groups. Harewood Bird Gardens has probably been the second most successful collection in the UK at breeding laughingthrushes.

San Diego Zoo reports limited success with Red-tailed Laughingthrushes (Lieberman) kept in four groups of between four and six birds in 1983. Eggs were laid in a total of eight nests, resulting in only three young reaching the fledgling stage, although one later died shortly after through being attacked by another pair of the same species. Lieberman goes on to say “It is recommended that in aviaries of limited resources (space, vegetative cover, nest sites and material) nesting pairs of Red-winged Laughingthrushes should be kept to a minimum to prevent intra-specific aggression between nesting birds and fledglings”. From experiences with this group over the years, I heartily concur with this statement - maximum success will be achieved only by keeping single pairs per aviary, especially for private breeders who are unable to provide the massive structures that some public collections are able to offer. Mace (1991) reports Tickell’s, White-throated, White-browed, Yellow-throated
and Black-throated Laughingthrushes all having reared chicks in a large walk-through aviary (44 m x 33 m x 12 m) at San Diego Zoo, but whether they were all bred during the same period is not stated, nor are the numbers reared given.

Most other reports where success is achieved record only one pair of laughingthrushes per aviary, a criteria which is likely to be the most successful with private breeders. Zoological collections which can offer spacious enclosures are able to keep more than one species per enclosure but, although breedings are reported, each species full potential is unlikely to be achieved.

**INTRA-SPECIFIC TOLERANCE**

It seems that, in small enclosures at least, there is some tolerance with members of the same species outside of the breeding season. This starts to change at the onset of breeding and usually takes the form of keeping others out of a protected territory. This can soon degenerate into serious conflict and removal of non-breeding birds should be undertaken as soon as any chasing, keeping away from food or other behavioural changes is witnessed. Hewston (1983) however, reports four White-browed Laughingthrushes carrying nesting material around but believed only two birds were building the nest. Later, following the death of one bird, the pair started to keep the remaining bird at bay and it was removed. Lieberman reports friction between Red-winged Laughingthrushes in aviaries of quite substantial dimensions.

Three White-crested Laughingthrushes at Busch Bird Park (Young) which formed a breeding trio (sex of third bird not given), nested on numerous occasions but only succeeded in parent-rearing on one occasion. A total of 29 young were hand-reared over a four year period.

Success rate, even in large enclosures, is well below that achieved where only a pair are kept per enclosure.

Pairs should be on their own by mid-February. Current year young were always removed by November at Beale Park.

**INTER-SPECIFIC TOLERANCE**

Two Yellow-throated Laughingthrushes housed in an aviary 20 m long coexisted with a believed true pair of Black-throated Laughingthrushes and actually helped in the rearing of their young (King pers. comm.). These two birds subsequently proved to be two hens when surgically sexed.

At Leeds Castle however, the females of proven pairs of Spotted and Red-tailed Laughingthrushes kept in the same aviary as a breeding pair of Yellow-throated Laughingthrushes assisted in feeding the young of the latter (Gardner pers. comm.) but did not attempt to nest themselves. Fairy Bluebird chicks have also been reported as being fed by Yellow-throated Laughingthrushes at the same establishment.

San Diego Zoo also reports (Mace, 1991) White-throated and Yellow-throated feeding recently fledged Tickell’s Laughingthrushes.

**PARENT/SIBLING TOLERANCE**

In five species of laughingthrushes (White-crested, Red-tailed, Hwamei, Rufous and Red-winged), bred at Beale Park, current year young, where tried, have not interfered with subsequent clutches. To the contrary, they have assisted in bringing up subsequent broods, thus exhibiting the extended family behaviour recorded in the wild. Demand for livefood in
such groups is high and other than for the interest of seeing such behaviour, it is probably advisable to remove young once fledged and fully independent. In Red-tailed Laughing-thrushes, two broods (of 3 and 2 young respectively) helped to rear a third. Other species bred at Beale Park have not been given this opportunity, either because of excessive livefood demands or just because one brood only was reared during the season. Separation of current-year young is always done by the year end.

Busch Bird Park records three White-crested Laughingthrushes breeding over a four year period (Young) but on only one occasion did they rear by themselves. All other successes were hand-reared. The cause of failure is not given.

San Diego Zoo (Mace, 1991) succeeded in rearing Tickell’s Laughingthrushes with the previous year’s young still in the aviary. The parents were observed feeding insects to their newly fledged siblings but it is not stated whether they did so whilst the latter were still in the nest. There is enough evidence to suggest that laughingthrushes are assisted by their offspring when raising further broods and it will be interesting in the future to see if the list of species recorded as doing so is increased.

CHANGING GROUP STRUCTURE

Laughingthrushes generally exhibit very little aggression towards each other but some care needs to be exercised in certain instances. For example, when a bird of unknown sex is added to an aviary containing two of the same species in the hope of obtaining a pair. Pair bonding may not be evident as some species exhibit little or no “closeness”. However, there should be no need for this experimental approach, with surgical sexing easily carried out on ALL species. DNA sexing is available but not all providers of this service are willing to set up the initial profiles for species which are unlikely to yield profit in the short term.

If birds are unfamiliar with each other, and likely to be of the opposite sex, introduction is best done in a neutral aviary, especially if the aviary is small. If not adopting this policy, the female should be the established bird. Having said that, laughingthrushes are probably one of the easier groups of birds to introduce into aviaries containing other conspecifics, if common sense is applied. Outside the breeding season and in a neutral aviary tends to be the best time and place to introduce new birds together. In the wild different species would tend to congregate to form feeding flocks when not breeding. Of the 25 species kept over the years by the author, Greater Necklaced and White-crested Laughingthrushes would warrant extreme care and observation.

The likeliest scenario for trouble would be to introduce new birds into a small sparsely planted aviary containing an established pair during the height of the breeding season, although, as experienced at Busch Bird Park (Young), it can also be troublesome in much larger aviaries, in this case a walk-through with a ground area of 3000 square metres and a height of 23 m.

Beale Park maintained two aviaries of single sex populations with fluctuating numbers and experienced few problems, irrespective of the size of the birds and population density when introduced, although these aviaries were well planted and large enough to be considered not overcrowded. These birds were available to form pairs, either to cover losses within the park or elsewhere that have odd, sexed birds.

Six White-crested Laughingthrushes obtained by Busch Bird Park in July 1971 (Young) decreased to three during the Winter/Spring of 1971/72. Six more birds were purchased during June 1972 at which point no aggression had been suspected. Within three days all six were dead, all apparently killed by the three established residents. Five 1973 hatched and hand-reared birds were introduced the following March but had to be removed.
shortly afterwards because of harassment. Three parent-reared birds of 1974 were left and co-existed perfectly to the point of assisting with nest construction and the feeding and protection of young but only the original pair laid and incubated eggs. However, all subsequent young had to be hand-reared.

Whatever approach is adopted when introducing new birds, it should be undertaken only when the maximum amount of time is available for monitoring the integration.

**COEXISTENCE WITH OTHER SPECIES**

The general rule is not to run laughingthrushes with smaller birds, although some of the smaller *Garrulax* are trustworthy with others of a lesser size, at least outside the breeding season. Being active birds they are constantly searching the leaf-litter and foliage for food; anything else that nests in an open cup stands little chance of hatching and rearing unless they defend their nest area with vigour. Individual birds, rather than a species as a whole, are not adverse to egg-eating and once a taste has been acquired it is difficult to break. This, fortunately, does not seem to be carried over when the individuals themselves are nesting as their own eggs seem to be ignored, although there are suspicions that this is not the case in some collections. Over the years, numerous eggs have been lost at Beale Park but this is often correlated with an increase in the Long-tailed Field-mouse *Apodemus sylvaticus* population. As soon as this is dealt with, the problem of egg loss usually disappears.

Aggression, particularly in the larger species, is a distinct possibility at breeding time. Some tolerance is exercised if the nest is approached, but on fledging young it is a different story, especially if other species fledge young at around the same time - vigorous protection can ensue, even with species considerably larger. Red-headed Laughingthrushes have been seen to attack a Violaceous Turaco *Musophaga violacea* when young from both sat within a metre of each other. The situation was calm until the turacos fed their young.

A pair of Grey Laughingthrushes in another instance were in the process of building when Grey-headed Chachalaca *Ortilis cinereiceps* fledged young. The latter instigated the aggression but the laughingthrushes were removed to avoid injury as they were more than willing to hold their ground.

Some birds are egg-eaters and it could well have started through coming into contact with a smashed egg. Some quite large species are kept with doves at Beale Park without trouble, but if birds are suspected of egg-eating they should be kept with birds that are hole-nesters or ground dwellers that lay under bushes. There are no traceable records of eggs being taken in either of these situations because laughingthrushes exhibit a reluctance to investigate dark places. Pigeons could be encouraged to nest in a basket placed high in a dark corner of shed or aviary.

Only one pair of Spotted Laughingthrushes were suspected of being regular egg-eaters at Beale Park and these were kept with a pair of pheasants for which breeding was of low priority. It was never proved, but it now seems likely, that it was the pheasants themselves which ate the eggs as they have now been placed in a different aviary and eggs are still being eaten. It has still not been witnessed, and despite still being housed with another large laughingthrush, I suspect the pheasants are to blame. There are enough reports to suggest that certain birds do eat eggs. This can be minimised by adopting a policy of keeping species that are not directly in competition for food and which are cavity or ground nesters or commence incubation with the first egg (eg. Pigeons and doves).

One Yellow-throated Laughingthrush developed a fascination for a female Sonnerat’s Junglefowl *Gallus sonneratii* in as much as it followed her around for hours at a time, occasionally pulling at her tail. Others, as at Chester Zoo, have bred in large mixed flights
with no problems (Wilkinson pers. comm.). There are also accounts (pers. comm.) of them harrying species as large as turacos, in some instances, quite severely. Hewston (1982) found White-cheeked Turacos harassed by a male White-browed Laughingthrush when breeding, confining the former to an inside shelter.

There are several reports (pers. comm.) of aggression by Red-tailed Laughingthrushes towards other species, but there are, equally, accounts of them being no trouble at all. Perhaps this is a species which needs to be kept either on its own or in large planted aviaries. The likelihood of trouble is when aviaries are overcrowded with similar-sized birds, although there are reports of larger birds, particularly turacos, being harassed quite severely as if being singled out quite specifically.

Beale Park only keep laughingthrushes with non-competing species and, save for the odd altercation, have experienced little trouble.

There seems to be no hard and fast rules on mixing with other species. I suspect that trouble may stem from pressures of not enough space resulting in competition for nest sites and food. Some keepers have had trouble with Yellow-throated Laughingthrushes attacking much larger birds, whilst at Beale Park, they have been kept with much smaller species such as Java Sparrows *Padda oryzivora*, Bare-faced Ground-Doves *Metriopelia ceciliae* and Gold-billed Doves *Columbina cruziana* with no trouble at all. Beale Park aviaries are large and heavily planted and do not contain species which compete in any aspect of their requirements.

Mixing White-crested and Necklaced Laughingthrushes can be tricky. Out of choice they should be kept on their own, although, again, some owners have mixed them with other species. When you have seen a Greater Necklaced Laughingthrush attack and almost kill an Erckel’s Francolin *Francolinus erckelii*, great caution is to be recommended when mixing species.

**BREEDING**

**NEWLY IMPORTED BIRD SUCCESS**

Most of the wild caught birds obtained by Beale Park have generally missed a breeding season before breeding successfully, although many have played about with nesting material, even to the point of putting an assemblage of a nest together in a bush or clump of bamboo. I can trace no record of the successful breeding of any species of laughingthrush in their first year of captive life. Hewston (1982) bred White-browed Laughingthrushes seventeen months after obtaining them. Even in the seemingly ideal climate of San Diego, Lieberman reported a period of over eighteen months before breeding activity started in earnest in a group of Red-winged Laughingthrushes.

**ESTABLISHED PAIR DISTURBANCE**

It may at times be warranted, for whatever reason, to move established breeding pairs. At Beale Park, four species which previously reared successfully, have been moved to other suitable aviaries and continued to breed the following year. Moved at the end of a breeding season, all had at least seven months to settle into their new surroundings before the onset of the following breeding season.
ESTABLISHED PAIR FATALITY

Pairs separated by the death of one bird at Beale Park, have continued to nest with a new partner, if established to captivity, especially if there is a lengthy period between pairing and the start of the next breeding season. Some may miss a year but one pair (Red-winged Laughingthrush) successfully bred at the second attempt, after a little over three months together. Some pairs are reluctant, and several keepers report no further behaviour, but the sexes of some of these new pairings are unknown so may not give a true picture.

BREEDING SEASON

The majority of species for which records exist in the UK breed between April and August. Red-winged Laughingthrushes at Beale Park frequently laid in March with Red-tailed Laughingthrushes recorded as laying in September and October, while at Padstow Bird Gardens in Cornwall the same species reared in October (Haines). Depending on suitability of conditions some will nest outside the normal parameters but this is likely to be confined to the smaller species. Larger species may start nest-building in March but it will probably be April or May before eggs are laid. There are, however, exceptions to the rule and these are likely to become more pronounced if weather patterns continue to be erratic.

Like most cup-nesting species, which are for the most part insectivorous when feeding young, the breeding season is likely to be during the period of maximum daylight and reasonably stable climatic conditions, though peaking before it becomes excessively hot.

BREEDING GROUP SIZE

One adult pair of laughingthrushes per aviary is the optimum to maximise the prospect of successful breeding. More than one pair usually results in unsuccessful attempts, with nesting normally proceeding no further than eggs, which either disappear or end up broken. Young from current year broods can be left to assist in the rearing of successive broods during that year. At Beale Park, Rufous, Greater Necklaced, Hwamei, Red-tailed, White-browed and White-crested Laughingthrushes have all reared subsequent broods successfully with several, particularly the White-crested, being very adept. The remaining species, Black-throated, Elliot’s, Spotted, Red-winged, and Red-headed Laughingthrushes have either failed to reclutch or subsequent young failed to reach maturity. For the record, Grey and David’s have hatched but failed to rear young at Beale Park while Yellow-throated and Rufous-vented Laughingthrushes have laid infertile eggs.

San Diego Zoo has had success when more than one species was held in an enclosure, but it was in a large walk-through flight, well beyond the dimensions most private and many public collections are able to offer. Both King and Gardner (pers. comm.) have bred with other laughingthrushes in the same aviary but again these have been spacious enclosures.

SEXING

Being sociable birds, behaviour is not a good guide to sexing laughingthrushes. Surgical sexing is possible with all species and is to be recommended, although not every vet will undertake the procedure with the smaller species. Andrew Greenwood of the International Zoo Veterinary Group (Tel. 01535 692000) is one vet who will sex all laughingthrushes. DNA sexing is another option for an increasing number of species.
Two species were thought to be sexable by eye colour. This has virtually been dismissed in one case, the Scaled where surgically sexed birds were different to that suspected and because the coloration was dependent on very good light, eye colour has now being ruled out as a means of sexing. However, the Barred Laughingthrush is sexable by eye colour. Both pairs in the UK exhibit an eye-colour difference, and the pair at Beale Park had been surgically sexed - males have a brown iris while those of the females are white.

The original two pairs of Rufous Laughingthrush at Beale Park were visually sexed using size as a guide that proved to be accurate. Both males were somewhat larger than the females and this sexual difference followed was confirmed by surgical sexing. As surgical sexing is straightforward, there is no need to rely on the slight visual differences which exist between some birds and which may not be an accurate guide anyway. It is quite likely that size could be a factor in several of the larger species but not enough comparative data is available.

Gibson (1979) gives the narrow line of white feathers on the lores as an indicator of sex in Chestnut-capped Laughingthrushes. These were broader and whiter in males than the females but no variation was seen in a pair of surgically sexed birds at Beale Park or in skins at the Tring Museum.

Bates and Busenbark (1970) give a difference between the sexes of White-crested Laughingthrushes as the female having a slightly smaller crest with more of a greyish extent.

It must be remembered that with laughingthrushes, perhaps more so than with most other families, a number of subspecies have been imported which only add to the confusion. White-crested (3 spp.), Black-throated (3 spp.), Greater Necklaced (4 spp.) and Red-headed Laughingthrushes (at least 3 spp.) are just four species where there has been the most confusion. Most show little difference between the sexes and surgical or DNA sexing are the only methods of being certain.

NEST-BUILDING

Early nest construction can prove to be a long, drawn out affair and frequently such efforts are abandoned before completion. Indeed, construction can start three weeks or so before a serious attempt is made. Frequently, species which breed in April or May will start in March, carrying nest material around - but a lot of it is haphazard and without much enthusiasm. Red-winged Laughingthrushes at Beale Park which bred in March would fiddle about with material in February. Once March came, nests were usually built in four or five days, about the time it takes most serious pairs to construct a nest. In spells of inclement weather it takes several days longer, especially during a spell of heavy rain.

Both sexes build the nest, which is usually at a height of around 2 m but in enclosures with more height it may be 3-4 m up. The main contributing factor for self-built nests is likely to be the suitability of available sites. One nest is recorded as low as 0.9 m at San Diego Zoo.

A wide variety of materials are used - the general rule is the larger the species, the coarser the material used. Small twigs, the fine stalks off heather bushes, pine needles and fine roots can all be provided. The dead leaves of bamboo are a favourite for lining the cup but when it comes to that stage, if a particular species chooses to do so, enough suitable material will be found around the aviary to accomplish the task. Not all species line the nest as such, but just place finer pieces of the main structure material in the cup. Smaller species tend to line nests, larger ones not so, but there is an overlap.

NATURAL NEST SITES
If suitable nest sites are provided, these will be used in preference to artificial nest sites. Because the two are inextricably linked, this aspect has been dealt with more fully under Planting (see page 15).

ARTIFICIAL NEST SITES

A variety of receptacles are reported in which laughingthrushes construct their nests. At Beale Park, small wicker baskets placed in deep cover or hidden in clumps of cut fir, have been used by several species and a pair of White-crested Laughingthrushes built in a wire dome which was surrounded by fir with twigs placed in the base.

Many other receptacles have been used as nesting sites including wicker baskets, wooded trays and even canary nesting pans. Whatever is used, it needs to be in a secluded area and camouflaged with some form of cover, fir being the most ideal as it keeps its colour for a longer period than most other cut foliage.

MATING

No mating has been observed in any pair at Beale Park. Hewston observed mating in a pair of White-browed Laughingthrushes which took place on the aviary floor, both birds standing side-by-side with tails vertical and heads lowered just before copulation.

CLUTCH SIZE

Clutch size tends to vary, and seemingly related to size of the species e.g. Red-winged and Red-tailed lay 2-3, Hwamei and Yellow-throated lay 3-4, whilst larger species such as Black-throated, Rufous and Greater Necklaced Laughingthrushes tend to have clutch sizes of 4-5 eggs. There is a little overlap, especially on subsequent broods, but this is a reasonable guide. Species laying lower and mid-sized clutches seem to lay constant clutch sizes with subsequent nests. Those producing larger clutches initially will usually produce clutches of about three after several rounds, whether successful or not. Hewton (2006) recorded two egg clutches from affinis on five occasions over a two year period.

EGG WEIGHT

Gibson (1982) gives the weight of one White-crested Laughingthrush egg as 6.5 g, equalling 7% of the female’s body weight while another weighing 7.1 g equalled 7.6%. The average weight of four Tickell’s Laughingthrush eggs at San Diego Zoo was 6.9 g (Mace 1991).

EGG LAYING

Eggs are laid on consecutive days by most species for which records exist, except for Tickell’s Laughingthrush which Mace (1991) gives as every other day.

EGG COLOUR

Most reports describe the egg colour as being either white or turquoise blue. Some are
marked lightly with brown, russet or black spots, streaks or tear-drops or a combination of these colours and marks. Those of Rufous-vented Laughingthrushes are very pale blue.

**INCUBATION PERIOD**

The incubation period for all laughingthrushes is between 13-17 days with the majority being 14-16 days. Duties are shared by both sexes, although females tend to do the bulk of incubation duties.

**EGG WEIGHT LOSS**

Mace (1991) collected egg weight loss data from a two egg clutch laid by a pair of Tickell’s Laughingthrush. The first egg laid on 20th September 1990 weighed 10.1 g, the second, two days later had a weight of 9.3 g. Both eggs lost 1.3 g during the 16 day incubation which represented a 12.9% and 14.0% overall weight loss respectively. Further eggs were artificially incubated but no weight loss data is given.

**COMMENCEMENT OF INCUBATION**

Sitting frequently started with the first egg at Beale Park, although there seems enough evidence to suggest that in some instances, it had commenced between 12-24 hours after the first egg was laid. On several occasions, closely observed nests have contained two fully dry chicks, one dry and one recently hatched chick or one hatched chick and a well advanced hatching egg when the previous day, only eggs were present. Hewston (1982) recorded incubation for his pair of White-browed Laughingthrush on clutch completion with the third egg. However, with the second, unsuccessful clutch of three eggs, incubation began with the second egg. Mace (1994) records incubation commencing with the second egg for Black-throated Laughingthrushes. The same author (1991) gives incubation as starting with the first egg for Tickell’s Laughingthrush.

**ARTIFICIAL INCUBATION**

In 1988 Mace (1991) incubated three Tickell’s Laughingthrush eggs. One was infertile while another contained an embryo that was malpositioned and eventually died. The remaining egg hatched successfully. A forced-air incubator set at 38 ºC was used with a wet-bulb reading of 28.8-30.0 ºC. Eggs were turned mechanically through 180 degrees every two hours. On pipping, the egg was removed to a hatcher set at 36.9 ºC with a wet-bulb reading of 31.1 ºC. Upon hatching, the chick remained there until dry.

**CLUTCH RECYCLING**

In species which are multi-clutched, recycling can be pretty rapid. At Beale Park, Greater Necklaced Laughingthrushes laid two days after the death of a partially successful clutch while Hewston (1982) recorded five days from last chick fledging to the first egg of the next clutch being laid by his pair of White-browed Laughingthrushes.

**NUMBER OF CLUTCHES**
Most species of laughingthrushes are multi-brooded and unsuccessful attempts can be repeated many times. From records at Beale Park, the greatest number of wholly successful nests in one year was achieved by a pair of Red-tailed Laughingthrushes in 1992 when nine young were reared from four broods. Greater Necklaced Laughingthrushes reared two, one each from two clutches but laid three others, of which further young were hatched but not reared in two, while the eggs from the third disappeared. The greatest number of nesting attempts recorded in a single year was seven by a pair of Hwamei, of which only two attempts produced independent young, although chicks were thought, but not proved, to have hatched in at least three others but disappeared for unknown reasons. Eggs were laid in the other attempts but vanished at various stages during incubation.

NEST INSPECTION

Most established breeding pairs will allow monitoring of the nest. Out of choice, this is kept to a minimum at Beale Park. Most species will put up a vocal objection and odd birds have been reported as attacking a hand as it approaches the nest. Unless there is a suspicion that something is wrong nesting birds are best left undisturbed.

At Beale Park however, there has been no record of desertion through checking nests and in fact, the odd time that other aviary occupants have had to be caught up during nesting, parents return to their duties soon after the aviary was vacated.

Both White-crested and Greater Necklaced Laughingthrushes have been reported by several aviculturists as pressing home attacks as nests are approached but equally some birds have done no more than verbally abuse the intruder.

HATCHING

The duration eggs take to hatch is difficult to assess as this would warrant more disturbance than is normally acceptable. However, a nest that was causing concern at Beale Park contained an egg a quarter of the way pipped and when checked again two hours later the chick was fully emerged.

DEVELOPMENT AND CARE OF YOUNG

Young are naked on hatching. They develop rapidly, leaving the nest at around 14-16 days although some will leave at 12 days. Perhaps interestingly several are on record as taking as long as 18 days. Hewston (2006) recorded 20, possibly 21 days in affini. As a rule, 14-16 days is a fair guide for most species; much earlier is likely to be due to disturbance.

Both parents take their turn at feeding chicks when the other is on brooding duty. Food is taken whole to the chicks. Some species will take only one item at a time, others several. However, after a couple of days, the parents carry as much as they can at each feed as their family continues to grow.

The brooding parent will stand on the nest while the other feeds the chicks and removes faecal sacks as it leaves. The brooding bird will usually stay on the nest until chicks are 8-9 days old unless very hungry itself and then will come off only briefly before returning with food. Both parents take it in turns but females seem to do most of the brooding and males most of the feeding.

Fledged young are small replicas of their parents, with shortly stubby tails and similar, but duller, coloration and markings.
Young move little in the first few days after fledging and if they do, disturbance is the usual cause. The result is frequently a crash landing but chicks are able to clamber well - bodies appear to be only half the adult size whilst feet and legs give the appearance of almost being fully developed on fledging. Chicks will occasionally flutter towards parents as they approach with food. This behaviour increases as chicks become more confident in their surroundings and controlled flights usually occur seven to ten days after fledging, becoming stronger and longer as time passes.

Independence is gained between 3-4 weeks after fledging at about 35-45 days of age, though by then young will have been partially feeding themselves for some time and have grown to almost adult size. Quite often a further clutch has been started by the time independence is gained. As mentioned previously, young from the current year will help to rear subsequent broods during the season. No aggression has been seen by parents of the 11 species reared at Beale Park towards current year young. All young are removed at the end of breeding season.

CO-OPERATIVE REARING

Laughingthrushes are co-operative breeders but it is likely, from captive evidence at least, that this is most probably restricted to current year young, at least in aviaries that are of modest dimensions. At Beale Park, Rufous, Greater Necklaced, Hwamei, Red-tailed, White-browed and White-crested Laughingthrushes have all helped in rearing subsequent broods successfully with several, particularly the White-crested, being very adept. The remaining species, Black-throated, Elliot’s, Spotted, Red-winged, and Red-headed Laughingthrushes have either failed to reclutch, had young failed to reach maturity or observations have been limited.

At San Diego Zoo, previous year Tickell’s Laughingthrushes helped in feeding fledged young (Mace 1991) although no mention is made of chicks being fed while still in the nest.

Yellow-throated Laughingthrushes at Leeds Castle Aviaries were assisted in rearing their young by Spotted and Red-tailed Laughingthrushes but both these species failed to nest themselves. Yealland also reported a pair of White-throated assisting a pair of Black-faced Laughingthrushes in rearing their single chick, feeding it while still in the nest and after fledging.

CHICK LOSS

A common misconception with laughingthrushes is that they are prone to throwing their young out of the nest! Interesting, as no such species is extinct! Rather than malign the family, a careful look needs to be taken at their management during the nesting period and several avenues explored. Being a country location, Beale Park tends to have problems with Field Mice and the appearance of an influx of these creatures in spring can be correlated to a loss of newly hatched chicks. When the problem is dealt with, chick mortality is much reduced.

Insufficient and inappropriately sized livefood at a critical time are other possibilities for chick loss as is disturbance due to competition from species with similar requirements, weak chicks and vagaries of the weather. Pair bonding of breeding laughingthrushes is strong and I can find no case of males being a problem as they usually take their duties very seriously indeed. Having said that, it is possible that once a cause has created a problem, it
may be extremely difficult, if not impossible to break, but this is most likely to be a problem with egg-eating rather than chick mortality.

SEXUAL MATURITY

Reports of second and subsequent generation breeding of laughingthrushes are rare. At Beale Park, Hwamei, Red-winged and Red-tailed Laughingthrushes have bred at around a year old while White-crested and Rufous Laughingthrushes have reared in their second year. Greater Necklaced Laughingthrushes hatched but failed to rear at two years old. There was a gap of four years before White-browed Laughingthrushes which had been bred at Beale Park reared young at Rode Bird Gardens (Curson pers. comm.) but this is not likely to reflect sexual maturity. It is probable that most small species mature in their first year while larger species may take longer. However the evidence from just two breedings by two species is not conclusive.

A yearling male Yellow-throated Laughingthrush paired to a wild caught female with a captive history of over eight years hatched young at Rode Bird Gardens.

BREEDING VIABILITY

A pair of White-crested Laughingthrushes raised at Beale Park in 1987 last reared young in 1997 (nine consecutive seasons) continued to lay in 1998 (infertile) and again, in 1999, hatched but failed to rear young. This pair was split by death in 1999.

A large percentage of the UK population of Yellow-throated Laughingthrushes imported in the early 1990’s were still alive ten years later. The only pair initially to breed on a regular basis were a pair held at Leeds Castle Aviaries. Unfortunately, the female has now died. Since then several other pairs have bred.

There are very few reports of sustained breeding over long periods with any species of laughingthrush. It is quite likely that the seven to nine years noted in previous paragraphs is about as long a breeding life as can be expected.

LONGEVITY

There are few traceable records in avicultural literature on the subject of longevity. Gibson (1982) had a White-crested Laughingthrush which lived to be at least 15 years old and two birds of the same species which were 12 years old at the time his article was written. Many of the original Yellow-throated Laughingthrushes, which came into the UK as adult, wild-caught specimens are now likely to be over 12 years old.

HAND-REARING

Busch Bird Park hand-reared twenty-nine White-crested Laughingthrushes over a five year period (Young). Most were taken at 10 days old because fledged chicks either died or disappeared shortly afterwards. They were fed on mealworms and Zu Preem canned Feline Diet and were feeding themselves at around three weeks old which is a shorter period than if parent-reared.

The most comprehensive account of hand-rearing is that given by Mace (1991) covering Tickell’s Laughingthrushes at San Diego Zoo. Chicks were placed in a bowl lined with paper towel and small twigs as a prevention against the birds developing splayed legs. The brooder was set at 35º C for the first few days, decreasing gradually to room temperature.
The diet consisted of mealworms, minced crickets with legs and head removed, and papaya supplemented with vitamins. Dead new-born mice were added on day seven. Food was offered using forceps and taken avidly by the gaping chick.

Chicks were fed 9 times a day between 06.30 - 17.45 hrs. A weight gain in the region of 10% per day was expected and adjustments in food intake was made to achieve this, as and when needed. The number of feeds each day remained the same as the chick grew but the amount offered was increased per feed at a ratio of 7 mealworms to 3 crickets. Daily consumption at a week old was 70 mealworms, 30 crickets and 3 new-born mice, plus the fruit. Items of other fruits were offered and taken at 24 days old.

Comparison of chick weight gain between hand-reared and parent-reared chicks was made. The parent-reared chick weighed 0.2 g heavier on hatching but at the fledging stage of 15 days, was 10 g to the good. This is put down to the parent-reared bird receiving only protein-rich foods, but could also be that it received food over a longer period during the day as parents will feed chicks during all daylight. The weight differential on day 3 was 15.6 g which was actually 4.6 g more than the hand-reared chick weighed at that time.

Yellow-throated Laughingthrushes have been hand-reared from the egg at Chester Zoo (Wilkinson pers. comm.). Chicks were fed chopped 1-3 day old pink mice and soaked crushed Zoo Diet A at hourly intervals on the first day and subsequently at 2 hourly intervals between 7 am and midnight. Locust abdomens were introduced into the diet when chicks were a week old and fruit from 12 days. Banana was the preferred choice of adults when feeding chicks.

**HANDLING**

**GENERAL HANDLING**

Daily handling of laughingthrushes is inappropriate. The only time it may be necessary is to coax birds into a shelter, if desired, in cold weather. This is achieved by chasing them in through a pop-hole, which may take time initially but which is soon learnt. In extreme cases, catching may be needed, but common sense should prevail in that birds should not be introduced to new enclosures in times of extreme weather conditions.

Most species have sharp claws and tend to hang on once attached to something, usually clothing, or a finger!

**CATCHING**

Most species move quickly and can prove extremely difficult to catch, even in confined spaces. Quick reactions on the part of the catcher are needed and the use of additional people to chivvy them out of bushes is to be recommended. In planted aviaries, one corner should always be left free of bushes and perches so that birds can be chivvied into that corner. One procedure that works quite well is to encourage the bird into the corner, then, holding out a hand to the side you don’t want the bird to fly and with a second person behind the first, the bird - with luck - will go the way you want and two people will be attempting to catch it. Some species are strong fliers, others not, while some are ‘bush creepers’.

If inside quarters are available with pop-holes, advance planning can save a lot of effort as hatches can be shut when the birds are fed or food held back until the birds are hungry. Some birds will shoot straight in at the first sign of a net, others will not. Trying to catch laughingthrushes in a heavily planted aviary without thought and planning can be a long and frustrating process!
Cage catching can still be far from easy, some, particularly Elliot’s and Red-tailed Laughingthrushes are extremely quick and literally bounce between surfaces at great speed.

Once in the hand, great care should be taken as they can be quite tricky to hold - the head should be placed between the first and second fingers with the rest of the hand wrapped around the bird to contain it gently but securely.

TRANSPORTATION

Laughingthrushes can be quite restless when placed in carrying cages. For short internal moves a container which lets in very little light is best. Although some individuals can appear quite settled in cages, this is the exception, especially if they have previously had the freedom of a large outdoor flight.

For journeys of some distance, it is recommended that containers should have ventilation holes covered with hessian sacking or similar material to darken the container, which still allows air to flow. Failure to do this can result in birds damaging their beaks and cere in transit.

Some cases of imported birds being overstocked in transit have resulted in beak deformities where the top mandible juts at a 45º angle. This does not seem to impede feeding in the half dozen cases the author has seen and there is a report (P. Wexler pers. comm.) of young being hatched but not reared by a pair of White-crested Laughingthrushes in which one of the pair had this deformity.

Transportation by air is governed by IATA regulations, and these are enforced. Precautions as recommended above need to be taken, with the addition of a low perch. A perch placed too high in a confined space may inflict injury if birds panic.

POPULATION MANAGEMENT

The total number of laughingthrush species kept in the UK during the last five years is believed to be in the region of 30 as of December 2002. See Classification for key to species.

The number of imported individuals of each species vary - Prince Henry’s and Chestnut-capped Laughingthrushes seem to have been restricted to a single pair of each, while only two pairs of Barred are known. Yellow-throated Laughingthrushes are represented by around 40 birds. Other species tend to be numerous as importation is still permitted with a number of species, although odd ones need to be watched, particularly the Greater Necklaced Laughingthrush, in case populations become low. The recent import ban of Chinese birds into the EU lasted briefly, and although there was concern that it was likely to effect populations, it was lifted before any test of avicultural ability to maintain these and other species was brought into play.

The author, under a Foreign Bird Federation Species Register, and with the help of Cage and Aviary Birds, maintained for a number of years, a register and annual census of laughingthrushes in the UK. The response was not that great and while the annual census has now stopped, contact is still maintained with a number of keepers and breeders, and individual requirements are still sorted out on an informal basis.

Birds bred at Beale Park were sent to other collections, both private and public wishing to establish birds and some success, notably at Harewood, has been achieved. Single sex groups were maintained at Beale Park and made available to aid the pairing of single birds, either at Beale Park or at other collections, both public and private.
Although eleven species (sixteen pairs in total) have reared at Beale Park, no more than six have done so in any one year. However, the annual total of species bred in the UK for the years 1994-96 reached double figures although 1997 and 1998 saw a decline in species bred to around six. Although incomplete, for data is volunteered, the table given on page 42 provides an indication of the species and numbers bred over the period the Foreign Bird Federation annual register has been in operation.

POPULATION MANAGEMENT PROGRAMMES

Although laughingthrushes will breed quite readily if given appropriate conditions, it is the provision of these conditions where problems arise. Greater success would be achieved if more thought was given to fellow inmates. Reducing competition, for food, aviary space and nesting sites, would go a long way to helping achieve greater success with this genus.

Survival rates are generally quite high for established adult laughingthrushes as they are quite hardy and well able to cope with a variety of conditions. Pronounced population increases have resulted from mass importation rather than captive breeding, although many of the currently held species came via a single or series of importations from areas previously restricted to exports, such as some previously isolated regions of China and the islands of Taiwan and Hainan between 1989-92. Barred, Yellow-throated, Prince Henry’s and Rufous Laughingthrushes were among species new to aviculture at around this time. Historically kept species are still being imported in some numbers.

The Yellow-throated Laughingthrush appears to be the only species increasing without fresh importation. As the wild population of this bird is of unknown status, a Regional Studbook for the UK run through the Federation of Zoo’s Joint Management of Species Programme has been set up. Co-ordinated by Laura Gardner, (The Aviary, Leeds Castle, Maidstone, Kent ME17 1PL), it charts the progress of this species within the UK and anyone keeping this species is urged to participate, if not already doing so.

It is however debatable whether the species is rare or just little known. A reasonable number have come into the UK, Germany, Italy, Denmark and probably other major bird keeping nations of Europe, and some have reached North America. There is an increasing number of breedings being reported on the continent, as indeed there is in the UK where the population at the end of 1998 stood at 40 registered with the Studbook and at least four others which are not so recorded.

INDIVIDUAL IDENTIFICATION AND SEXING

Identification of birds by leg ring is the most suitable and many vets use silver alloy, ringing right for male and left for female. Andrew Greenwood rings black for male and gold for female, which also have a sexing prefix inscribed for when the colour fades. This is not a problem with laughingthrushes but it is with ground birds which dig. Plastic split rings can be used although after several years they can become brittle and break. This method is useful if a group of known sexed birds are kept together, as pairs can be identified and separated.

Suggested ring sizes using the Aviornis ringing scheme are given on pages 40-41.
REFERENCES


In carrying out a literature survey for the genus Garrulax, especially those in older, mainly ornithological literature, it was found that a variety of scientific names were used before the establishment of the present genus was universally adopted. Peters (1964) is a good starting point to commence a search. Names traced are listed below and are only given as an aid should research wish to be taken further:

<table>
<thead>
<tr>
<th>Allocotops</th>
<th>Kittasoma</th>
<th>Rhinocichla</th>
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<tr>
<td>Crateropus</td>
<td>Leucodiopterum</td>
<td>Trochalopteron</td>
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<td>Dryonastes</td>
<td>Leucodioptron</td>
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<td>Garrulaxis</td>
<td>Leucodioptron</td>
<td>Stactocichla</td>
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<td>Grammatoptila</td>
<td>Melanocichla</td>
<td>Strophocinclla</td>
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<td>Ianthocinclla</td>
<td>Pterocycles</td>
<td>Xanthocinclla</td>
</tr>
<tr>
<td></td>
<td>Pterorhinus</td>
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</tr>
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</table>

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ACKNOWLEDGEMENTS

A great many people are to be thanked for their help in the preparation of these notes over the various editions but I would like to extend a special thanks to Simon Tonge and Roger Wilkinson both for their proof-reading acumen and constructive suggestions. The list of books with species illustrations also owes its existence to Simon. Many others offered suggestions, avenues for material sources and personal notes and observations and I would like to thank David Jeggo, Laura Gardner, Dennis Vrettos and Jim Irwin-Davis in particular. Many private keepers gave freely of their advice, some even allowing the catching of their birds for leg measurements. To these and all others who helped, no matter how trivial it may have appeared to them, I offer my thanks. These notes have been greatly enhanced because of their involvement.

A special thanks is extended to the Natural History Museum at Tring for allowing access to their excellent skin collection.

As ever, Reuben Girling receives extra praise, especially for the help and suggestions given with this latest edition.
FIRST BREEDING RECORDS FOR
LAUGHINGTHRUSHES IN THE UK.

<table>
<thead>
<tr>
<th>Species</th>
<th>Year</th>
<th>Location</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masked Laughingthrush G. perspicillatus</td>
<td>1964</td>
<td>London Zoo</td>
<td>AM 1965:8</td>
</tr>
<tr>
<td>White-Crested Laughingthrush G. leucolophus*</td>
<td>1968</td>
<td>Mole Hall Wildlife Park</td>
<td>IZY 10:302</td>
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<tr>
<td>Greater Necklaced Laughingthrush G. pectoralis</td>
<td>1993</td>
<td>Beale Park</td>
<td>D. Coles pers. comm.</td>
</tr>
<tr>
<td>Black-throated Laughingthrush G. chimenis</td>
<td>1931</td>
<td>H. Kenway</td>
<td>AM 1934:304</td>
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<tr>
<td>Moustached Laughingthrush G. cinereus</td>
<td>1982</td>
<td>London Zoo</td>
<td>ASBR 1982:29</td>
</tr>
<tr>
<td>White-throated Laughingthrush G. rufogularis</td>
<td>1974</td>
<td>Winged World</td>
<td>AM 1975:68</td>
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<tr>
<td>HWAMEI Garrulax canorus</td>
<td>1985</td>
<td>Harewood Bird Garden</td>
<td>CB 12/10/1985:10</td>
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<tr>
<td>White-browed Laughingthrush G. sannio</td>
<td>1982</td>
<td>N. Hewston</td>
<td>AM 1983:63</td>
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<tr>
<td>Elliot’s Laughingthrush G. elliotti</td>
<td>1996</td>
<td>Beale Park</td>
<td>D. Coles pers. comm.</td>
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<tr>
<td>Black-faced Laughingthrush G. affinis</td>
<td>2005</td>
<td>N. Hewston</td>
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<tr>
<td>Red-headed Laughingthrush G. erythrocephalus</td>
<td>1974</td>
<td>Chester Zoo</td>
<td>CZN 1975:2:12</td>
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* both G.l. diardi and G.l. belangeri have been bred but which race was bred when is uncertain.

References for above

<table>
<thead>
<tr>
<th>Journal</th>
<th>Location</th>
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<tbody>
<tr>
<td>AM Avicultural Magazine</td>
<td>CZN Chester Zoo News</td>
</tr>
<tr>
<td>ASBR Avicultural Society Breeding Register</td>
<td>FB Foreign Bird League</td>
</tr>
<tr>
<td>CB Cage and Aviary Birds</td>
<td>IZY International Zoo Yearbook</td>
</tr>
</tbody>
</table>

The above records are taken from Coles. (2007). First Breeding Records for Captive Birds Bred in the UK.

SUGGESTED RING SIZES FOR LAUGHINGTHRUSHES

The number of birds measured to obtain data in the first two columns is bracketed; those without an entry were unable to be measured.

Suggested sizes are for rings issued by Aviornis. Details from Laurie Crampton, Cold Arbor Farm, Tytherington Lane, Bollington, Macclesfield, Cheshire SK10 5AA. Closed rings are accompanied by a certificate on which details can be registered of any bird bred, including their parentage if known. All sizes stated are recommended by the author and not Aviornis.

The sizes, in millimetres, recommended for live birds are, for the most part untried, but as there were several requests for both split and close ring measurements, I have tried to come up with some that I consider of suitable dimensions. Most species were measured as skins and, using this against those of live species that I was able to measure, I have hopefully provided some fairly reliable statistics. However, if in doubt, I would strongly advise ringing young birds with both the recommended and the next larger size, one on each leg, and then removing the one considered the most unsuitable when amply satisfied it is safe to do so. Some of the larger species do develop
very scaled legs as they get older so care should be taken and a careful check done periodically. Sizes on the following page are in mm.
<table>
<thead>
<tr>
<th>SPECIES</th>
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<th>LIVE LEG</th>
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<th>AV SPLIT</th>
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* Ring size given as correct for live bird but no actual measurements given (C. Garnhan pers. comm.).
UK LAUGHINGTHRUSH BREEDING RECORDED IN THE FOREIGN BIRD FEDERATION ANNUAL CENSUS 1984-2000

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LAUGHINGTHRUSHES CONSIDERED TO BE OF CONSERVATION CONCERN

ENDANGERED SPECIES

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COLLARED LAUGHINGTHRUSH *G. yersini*

VULNERABLE SPECIES

RUFOUS-FRONTED LAUGHINGTHRUSH *G. rufifrons*

BLACK-HOODED LAUGHINGTHRUSH *G. milleti*

CHESTNUT-BACKED LAUGHINGTHRUSH *G. nuchalis*

GREY-BREASTED LAUGHINGTHRUSH *G. jerdoni*

NEAR THREATENED SPECIES

ASHY-HEADED LAUGHINGTHRUSH *G. cinerifrons*

SNOWY-CHEEKED LAUGHINGTHRUSH *G. sukatschewi*

WHITE-SPECKLED LAUGHINGTHRUSH *G. bieti*

HWAMEI *G. canorus*¹

CHESTNUT-EARED LAUGHINGTHRUSH *G. konkakinensis*²

GOLDEN-WINGED LAUGHINGTHRUSH *G. ngoclinkensis*

This list superceeds that published in the first edition and follows the recommendations outlined in Threatened Birds of the World (2000) except for ¹ now listed on CITES Appendix II and ² which was discovered too late for inclusion. Both species are likely to meet the criteria for their listing here.

Use of a bold font indicates species represented in UK aviculture as at 1st January 2003. Their status in captivity since the publication of the 2nd edition is likely to have decreased.
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