

## **Supplementary Material**

### **The influence of the Southern Oscillation Index on the timing of breeding of a forest-bird community in south-eastern Australia**

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**Table S1.** The 19 species for which data on breeding phenology were available. Asterisks signify migrant species: \* laying and arrival time data available; \*\* arrival time data only. <sup>A</sup> Species for which Duursma et al. (2018) had breeding data. E = early layer, A = average layer, L = late layer

White-throated Treecreeper (*Cormobates leucophaea*) (A)

<sup>A</sup>Superb Fairy-wren (*Malurus cyaneus*) (A)

Variiegated Fairy-wren (*Malurus lamberti*) (A)

Eastern Spinebill (*Acanthorhynchus tenuirostris*) (A)

<sup>A</sup>Golden Whistler (*Pachycephala pectoralis*) (A)

<sup>A</sup>Spotted Pardalote (*Pardalotus punctatus*) (E)

<sup>A</sup>White-browed Scrubwren (*Sericornis frontalis*) (E)

<sup>A</sup>Brown Thornbill (*Acanthiza pusilla*) (E)

Yellow-faced Honeyeater (*Lichenostomus chrysops*) (E)

<sup>A</sup>Eastern Yellow Robin (*Eopsaltria australis*) (E)

<sup>A</sup>Rufous Whistler (*Pachycephala rufiventris*)\* (L)

<sup>A</sup>Grey Fantail (*Rhipidura albiscapa*) (L)

<sup>A</sup>Noisy Friarbird (*Philemon corniculatus*) (L)

Leaden Flycatcher (*Myiagra rubecula*)\*\*

Black-faced Monarch (*Monarcha melanopsis*)\*\*

Cicadabird (*Coracina tenuirostris*)\*\*

Olive-backed Oriole (*Oriolus sagittatus*)\*\*

Sacred Kingfisher (*Todiramphus sanctus*)\*\*

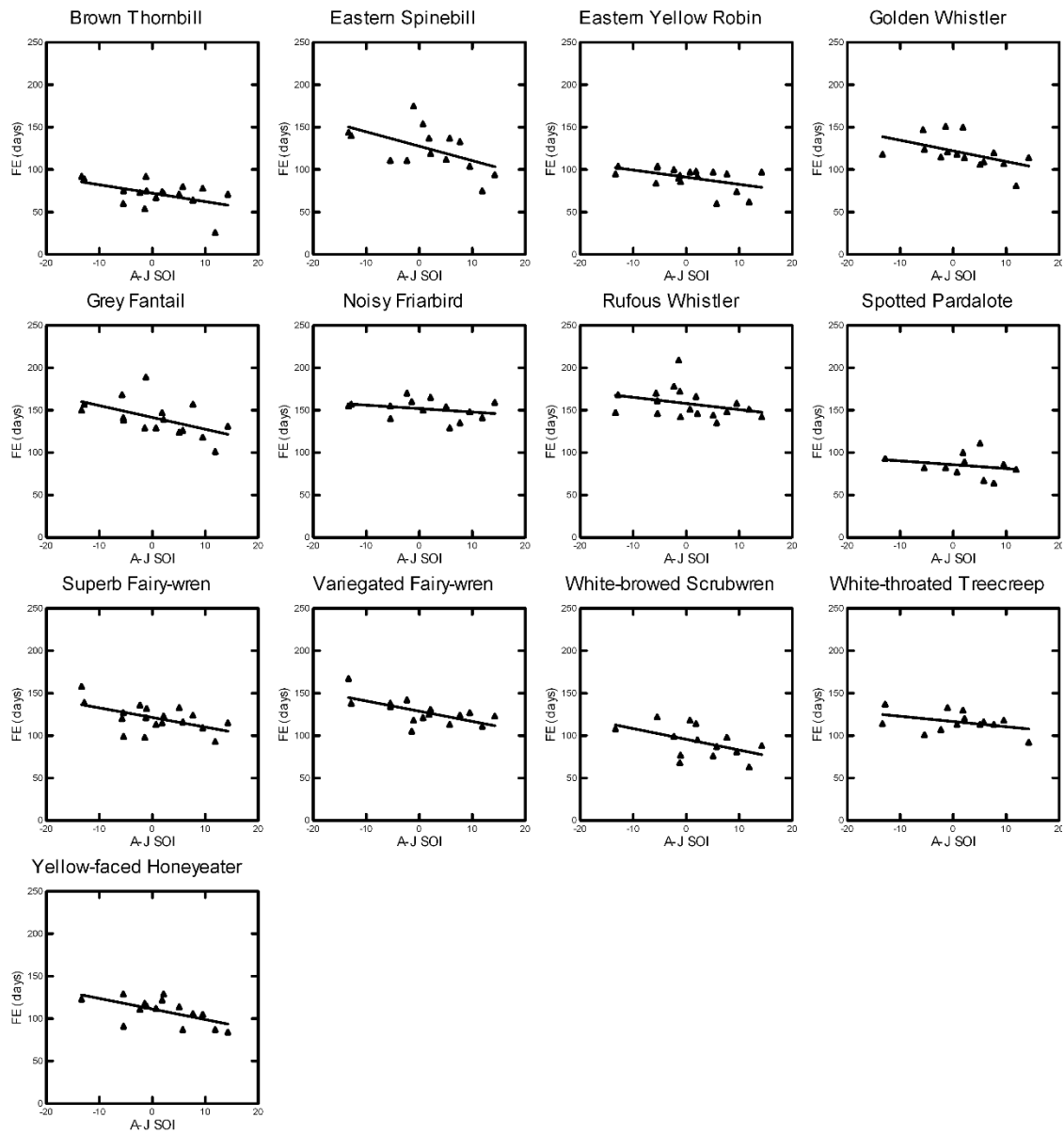
Dollarbird (*Eurystomus orientalis*)\*\*

**Table S2.** The date of laying of the first egg (FE) for each species in each year, given as number of days since June 1. The number of pairs observed each year is given in brackets; n = the number of species for which FE was recorded for each year

|                               | 1975    | 1976    | 1977    | 1978     | 1979    | 1980    | 1981    | 1982    | 1983    | 1984    | 2007    | 2008     | 2009     | 2010    | 2011     | 2012     | 2013     | 2014     |
|-------------------------------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------|----------|----------|----------|----------|
| White-throated<br>Treetreeper | 92 (2)  | 107 (2) | 114 (2) | 113 (2)  | 133 (2) |         | 116 (2) | 137 (2) | 101 (2) |         |         | 130 (1)  | 113 (1)  |         | 118 (1)  |          | 113 (1)  | 120 (1)  |
| Superb Fairy-<br>wren         | 115 (8) | 136 (4) | 158 (3) | 133 (2)  | 132 (2) | 120 (4) | 116 (2) | 139 (1) | 99 (5)  | 121 (4) | 98 (5)  | 115 (8)  | 113 (8)  | 93 (10) | 109 (8)  | 127 (8)  | 124 (9)  | 123 (7)  |
| Variiegated<br>Fairy-wren     | 123 (2) | 142 (3) | 167 (2) |          | 118 (2) |         | 113 (2) | 138 (2) | 134 (2) |         | 105 (1) | 125 (1)  | 121 (1)  | 111 (1) | 127 (3)  | 138 (2)  | 124 (2)  | 131 (1)  |
| White-browed<br>Scrubwren     | 88 (1)  | 99 (4)  | 108 (3) | 76 (4)   | 77 (3)  |         | 87 (2)  |         |         | 68 (3)  |         | 114 (2)  | 118 (1)  | 63 (1)  | 81 (4)   | 122 (1)  | 98 (2)   | 95 (2)   |
| Brown<br>Thornbill            | 71 (10) | 73 (8)  | 92 (7)  | 71 (7)   | 75 (6)  |         | 80 (2)  | 89 (2)  | 75 (2)  | 92 (3)  | 54 (7)  | 74 (13)  | 67 (11)  | 26 (11) | 78 (12)  | 60 (6)   | 64 (11)  | 72 (10)  |
| Yellow-faced<br>Honeyeater    | 84 (10) | 111 (9) | 123 (6) | 114 (10) | 115 (1) |         | 87 (7)  |         | 91 (6)  |         | 118 (6) | 122 (10) | 112 (11) | 87 (12) | 105 (18) | 129 (20) | 106 (18) | 129 (13) |
| Eastern Yellow<br>Robin       | 97 (5)  | 100 (6) | 95 (4)  | 97 (5)   | 86 (5)  | 84 (6)  | 60 (4)  | 104 (4) | 104 (3) | 93 (3)  | 90 (6)  | 98 (6)   | 97 (6)   | 62 (3)  | 74 (7)   | 103 (5)  | 95 (6)   | 92 (7)   |
| Golden<br>Whistler            | 114 (2) | 115 (2) | 118 (2) | 106 (2)  | 121 (2) | 147 (1) | 109 (1) |         | 124 (1) |         | 151 (2) | 150 (1)  | 118 (2)  | 81 (2)  | 107 (1)  |          | 120 (2)  | 114 (1)  |
| Rufous<br>Whistler            | 142 (3) | 178 (4) | 147 (4) | 144 (4)  | 142 (3) | 170 (3) | 135 (3) | 168 (1) | 146 (1) | 172 (4) | 209 (1) | 166 (1)  | 151 (1)  | 151 (4) | 158 (5)  | 161 (4)  | 148 (5)  | 146 (5)  |
| Noisy Friarbird               | 159 (1) | 170 (1) | 155 (1) | 154 (1)  |         |         | 129 (1) | 157 (1) | 140 (1) |         | 160 (1) |          | 150 (2)  | 141 (4) | 148 (2)  | 155 (2)  | 135 (3)  | 165 (1)  |
| Grey Fantail                  | 131 (3) |         | 150 (3) | 124 (3)  |         | 168 (1) | 126 (2) | 157 (2) | 138 (2) | 189 (2) | 129 (3) | 147 (5)  | 129 (3)  | 101 (2) | 118 (5)  | 141 (3)  | 157 (4)  | 139 (6)  |
| Eastern<br>Spinebill          | 94 (3)  | 111 (3) | 144 (2) | 112 (3)  | 175 (3) |         | 137 (2) | 140 (3) |         |         |         | 137 (1)  | 154 (2)  | 75 (7)  | 104 (4)  | 111 (6)  | 133 (4)  | 119 (2)  |
| Spotted<br>Pardalote          |         |         |         | 111 (3)  |         |         | 67 (9)  | 93 (3)  |         |         | 82 (3)  | 100 (2)  | 77 (1)   | 80 (3)  | 86 (5)   | 82 (2)   | 64 (3)   | 89 (5)   |
| n                             | 12      | 11      | 12      | 12       | 10      | 5       | 13      | 10      | 10      | 6       | 10      | 12       | 13       | 12      | 13       | 11       | 13       | 13       |

**Table S3.** Day of arrival for the seven migratory species, measured as days since June 1

|                             | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Black -<br>faced<br>Monarch |      | 123  | 123  | 124  | 122  | 123  | 118  | 130  | 122  |      | 113  | 119  | 124  | 119  | 118  | 122  | 111  | 117  |
| Leaden<br>Flycatcher        |      |      |      |      |      | 129  |      |      |      |      | 125  | 107  | 120  | 105  | 126  | 121  | 123  | 120  |
| Rufous<br>Whistler          | 103  | 109  | 110  | 120  | 110  | 115  | 109  | 111  | 102  | 109  | 111  | 113  | 106  | 105  | 106  | 109  | 104  | 113  |
| Dollar Bird                 | 150  | 146  | 140  | 151  | 140  | 117  | 130  | 134  | 134  | 132  | 130  | 131  | 135  | 123  | 134  | 132  | 134  | 121  |
| Sacred<br>Kingfisher        |      |      |      |      |      |      | 122  |      | 114  | 117  | 107  | 107  | 140  | 114  | 130  | 129  | 130  | 122  |
| Cicadabird                  | 138  | 142  | 127  | 131  | 132  | 132  | 127  | 156  | 127  | 137  | 114  | 109  | 102  | 109  | 136  | 139  | 124  | 121  |
| Olive-<br>backed<br>Oriole  | 83   | 93   | 93   | 93   | 105  | 122  | 93   | 93   | 93   | 122  | 89   | 89   | 55   | 63   | 73   | 48   | 86   | 121  |



**Fig. S1** Plots of date of laying of the first egg (FE; days after June 1) against the mean SOI for April to July (A-J SOI) for the 13 species.