

This is an electronic appendix to the paper by Ord *et al.* 2001 Intrasexual selection predicts the evolution of signal complexity in lizards. *Proc. R. Soc. Lond. B* **268**, 737–744.

Electronic appendices are refereed with the text. However, no attempt has been made to impose a uniform editorial style on the electronic appendices.

## APPENDIX A

(Ord *et al.*: Intra-sexual selection predicts the evolution of signal complexity in lizards)

Table A-1. *Sources consulted for species data*

species	repertoire size <sup>a</sup>	SSD	body size <sup>b</sup> (mm SVL)	references <sup>c</sup>
<i>Agama agama</i>	4	1.31	128	1
<i>Amblyrhynchus cristatus</i>	5	1.25	318	2-4
<i>Amphibolurus muricatus</i>	2	1.05	125	5, 6, 7
<i>Anolis acutus</i>	2	1.35	66	8, 9
<i>A. aeneus</i>	5	1.40	60	9-17
<i>A. auratus</i>	3	1.00	51	18-21
<i>A. bonairensis</i>	6	1.25	75	9, 10
<i>A. brevirostris</i>	1	1.09	51	22
<i>A. carolinensis</i>	8	1.19	64	23-34
<i>A. carpenteri</i>	5	0.93	41	21, 35
<i>A. caudalis</i>	3	1.09	51	22
<i>A. cristatellus</i>	6	1.43	70	8, 36
<i>A. cupreus</i>	5	1.17	55	21, 35
<i>A. distichus</i>	2	1.09	50	37, 38
<i>A. extremus</i>	5	1.38	83	9, 10
<i>A. griseus</i>	5	1.48	127	9, 10
<i>A. humilis</i>	5	0.95	38	21, 35
<i>A. intermedius</i>	5	1.00	54	21, 35
<i>A. limifrons</i>	5	0.95	40	21, 35, 39, 40
<i>A. lineatopus</i>	5	1.49	70	41
<i>A. luciae</i>	5	1.55	85	10, 42
<i>A. nebulosus</i>	5	1.17	42	43-46
<i>A. opalinus</i>	8	1.20	48	42, 47, 48
<i>A. pentaprion</i>	5	1.24	75	35, 49
<i>A. richardii</i>	5	1.62	125	9, 10
<i>A. roquet</i>	6	1.30	80	9, 10, 42
<i>A. sagrei</i>	6	1.34	55	27, 31, 33, 50, 51
<i>A. sericeus</i>	5	1.04	50	21, 35
<i>A. trinitatis</i>	6	1.30	72	9, 10, 11, 42
<i>A. tropidolepis</i>	5	1.02	59	21, 35
<i>A. valencienni</i>	0	1.16	85	52
<i>Callisaurus draconoides</i>	5	1.24	93	53

<i>Chalarodon madagascariensis</i>	5	1.30	87	54
<i>Conolophus subcristatus</i>	6	1.26	400	3, 55, 56
<i>Crotaphytus collaris</i>	4	1.05	110	57-59
<i>Ctenophorus fionni</i>	5	1.08	96	7, 60, 61
<i>C. fordi</i>	1	0.96	53	6, 7, 62-64
<i>C. maculosus</i>	4	1.17	69	7, 65
<i>Ctenosaura similis</i>	1	1.25	302	3, 49, 66
<i>Cyclura carinata</i>	5	1.19	267	3, 67, 68
<i>C. cornuta</i>	2	1.04	355	3, 68, 69
<i>C. ricordi</i>	0	1.04	355	68, 69
<i>Dipsosaurus dorsalis</i>	3	1.00	144	3, 70-72

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Table A-1. (continued)

species	repertoire size <sup>a</sup>	SSD	body size <sup>b</sup> (mm SVL)	references <sup>c</sup>
<i>Gambelia sila</i>	4	1.09	97	56, 73, 74
<i>G. wislizenii</i>	3	0.93	102	56,74, 75
<i>Holbrookia propinqua</i>	5	0.98	60	53, 76-78
<i>Iguana iguana</i>	7	1.32	360	3, 79-82
<i>Lophognathus temporalis</i>	1	1.05	130	7, 83, 84
<i>Microlophus albemarlensis</i>	4	1.39	104	85
<i>M. delanonis</i>	4	1.37	129	85
<i>M. grayii</i>	4	0.95	69	85
<i>Pogona barbata</i>	6	1.06	250	5, 7, 23, 86-88
<i>Sauromalus obesus</i>	4	1.06	164	3, 89
<i>Sceloporus cyanogenys</i>	2	1.08	130	90, 91
<i>S. graciosus</i>	4	1.00	57	92-94
<i>S. jarrovii</i>	4	1.12	97	90, 95-97
<i>S. magister</i>	2	1.12	140	96-98
<i>S. merriami</i>	4	1.04	58	96, 97, 99, 100
<i>S. occidentalis</i>	2	0.96	70	96, 101-103
<i>S. poinsetti</i>	2	1.20	120	90, 96, 97
<i>S. undulatus</i>	3	1.00	83	51, 92, 104-107
<i>Urosaurus ornatus</i>	2	1.00	53	100, 108-112
<i>Uta stansburiana</i>	4	1.10	54	42, 56, 113-117
outgroup species				
<i>Ameiva</i>	0			51, 118
<i>Carlia</i>	0			119
<i>Cnemidophorus</i>	0			120-122
<i>Coleonyx</i>	0			123
<i>Diplodactylus</i>	0			124
<i>Egernia</i>	0			64, 125
<i>Eumeces</i>	0			51, 126-132
<i>Lacerta</i>	0			23
<i>Lampropholis</i>	0			133, 134
<i>Nephrurus</i>	0			123
<i>Pristurus</i>	0			135
<i>Sphenomorphus</i>	0			136
<i>Varanus</i>	0			23, 63, 137-141

<sup>a</sup>Repertoire size: data on the number of display modifiers were obtained when at least one 'core' display component was also present. Species with no core displays were scored as having a repertoire size of 0 regardless of the number of modifiers reported. Core displays include head-nods and/or push-ups.

<sup>b</sup>Body size: as males are typically the sex conducting visual displays in lizards, male body size was used.

<sup>c</sup>1, Harris 1964; 2, Carpenter 1966b; 3, Carpenter 1982; 4, Schmidt 1935; 5, Carpenter *et al.* 1970; 6, Harlow & Taylor, in press; 7, Greer 1989; 8, Philibosian 1975; 9,

Roughgarden 1995; 10, Gorman 1968; 11, Gorman 1969; 12, Stamps 1973; 13, Stamps & Barlow 1973; 14, Stamps 1976; 15, Stamps & Crews 1976; 16, Stamps 1978; 17, Stamps & Krishnan 1994; 18, Fleishman 1988*b*; 19, Fleishman 1988*a*; 20, Fleishman 1992; 21, Andrews 1979; 22, Jenssen & Gladson 1984; 23, Bels 1992; 24, Cooper 1977; 25, Crews 1975; 26, Evans 1935; 27, Evans 1938*a*; 28, Greenberg & Noble 1944; 29, Greenberg 1977; 30, Jenssen *et al.* 1995; 31, Macedonia & Stamps 1994; 32, McMann 1993; 33, Tokarz & Beck 1987; 34, Ruby 1984; 35, Echelle *et al.* 1971; 36, Ortiz & Jenssen 1982; 37, Jenssen 1983; 38, Stamps *et al.* 1997; 39, Hover & Jenssen 1976; 40, Jenssen & Hover 1976; 41, Rand 1967; 42, Rogner 1997; 43, Jenssen 1970*a*; 44, Jenssen 1970*b*; 45, Jenssen 1971; 46, Lister & Aguayo 1992; 47, Jenssen 1979*a*; 48, Jenssen 1979*b*; 49, Fitch 1976; 50, Evans 1938*b*; 51, Noble & Teale 1930; 52, Hicks & Trivers 1983; 53, Clarke 1965; 54, Blanc & Carpenter 1969; 55, Carpenter 1969; 56, Stamps 1983; 57, Fitch 1956; 58, Greenberg 1945; 59, Yedlin & Ferguson 1973; 60, Gibbons 1979; 61, Johnston 1997; 62, Cogger 1978; 63, Tsellarius & Tsellarius 1997; 64, Webber 1981; 65, Mitchell 1973; 66, Henderson 1973; 67, Iverson 1979; 68, Martins & Lamont 1998; 69, Carey 1975; 70, Carpenter 1961*a*; 71, Norris 1953; 72, Parker 1972; 73, Montanucci 1965; 74, Tollestrup 1983; 75, Montanucci 1967; 76, Cooper 1985; 77, Cooper 1988; 78, Cooper & Guillette 1991; 79, Distel & Veazey 1982; 80, Dugan 1982*a*; 81, Lazell 1973; 82, Dugan 1982*b*; 83, Blamires 1998; 84, Harlow, unpublished data; 85, Carpenter 1966*a*; 86, Brattstrom 1971; 87, Lee & Badham 1963; 88, Badham 1976; 89, Nagy 1973; 90, Hunsaker 1962; 91, Greenberg 1973; 92, Ferguson 1971; 93, Martins 1991; 94, Martins 1993*b*; 95, Ruby 1977; 96, Martins 1994; 97, Martins 1993*a*; 98, Vitt *et al.* 1974; 99, Carpenter 1961*b*; 100, Milstead 1970; 101, Fitch 1940; 102, Tarr 1982; 103, Purdue & Carpenter 1972*a*; 104, Cooper & Burns 1987; 105, Ferguson 1973; 106, Roggenbuck & Jenssen 1986; 107, Rothblum & Jenssen 1978; 108, Carpenter & Grubitz 1960; 109, Carpenter & Grubitz 1961; 110, Mahrt 1998; 111, Thompson & Moore 1992; 112, Zucker 1987; 113, Carpenter 1962; 114, Ferguson 1966; 115, Ferguson 1970*a*; 116, Ferguson 1970*b*; 117, Purdue & Carpenter 1972*b*; 118, Lewis & Saliva 1987; 119, Whittier & Martin 1992; 120, Brackin 1978; 121, Carpenter 1960; 122, Schall 1974; 123, Greenberg 1943; 124, Bustard 1964; 125, Hickman 1960; 126, Breckenridge 1943; 127, Cooper & Vitt 1987*b*; 128, Cooper & Vitt 1987*a*; 129, Everett 1971; 130, Fitch 1955; 131, Mount 1963; 132, Perrill 1980; 133, Torr & Shine 1994; 134, Torr & Shine 1996; 135, Ross 1990; 136, Done & Heatwole 1977; 137, Auffenberg 1983; 138, Bels *et al.* 1995; 139, Carpenter *et al.* 1976; 140, Murphy & Mitchell 1974; 141, Twigg 1988).

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Figure A-1. Phylogenetic resolution of iguanian lizards illustrating ‘polytomies’ where the precise relationship between some species is left unresolved.

Figure A-2. The evolution of large display repertoires of iguanian lizards with Gekkonidae, Scincidae, Lacertidae, Teiidae and Varanidae outgroups revealing large repertoire size was absent at the ancestral node. Data were obtained from a variety of sources (table A-1). ■ = trait present, □ = trait absent, ◐ = equivocal reconstruction.

Figure A-1  
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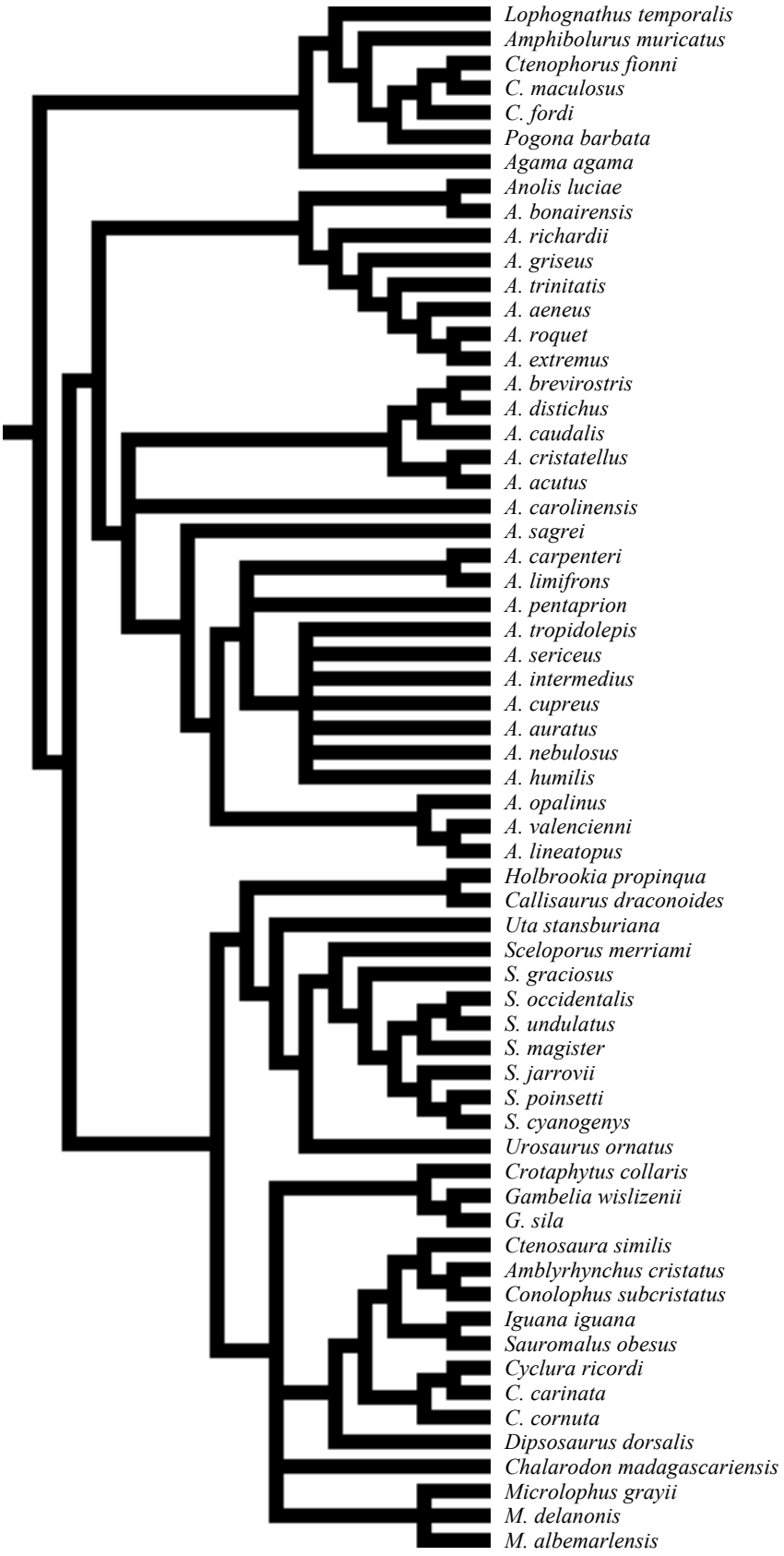


Figure A-2  
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