

These are electronic appendices to the paper by Song 2004 On the origin of the desert locust *Schistocerca gregaria* (Forskål) (Orthoptera: Acrididae: Cyrtacanthacridinae). *Proc. R. Soc. Lond. B* **271**, 1641–1648. (DOI 10.1098/rspb.2004.2758.)

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

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### **Electronic Appendix A**

#### **List of species studied**

Classification used here is based on Uvarov (1923), Dirsh & Uvarov (1953), Dirsh (1974), Mungai (1987a, 1987b, 1992), Harvey (1981), and Song (*in press*).

*Ornithacris turbida* (Walker, 1870)  
*Chondracris rosea* (De Geer, 1773)  
*Cyrtacanthacris tatarica* (Linnaeus, 1758)  
*Cyrtacanthacris aeruginosa* (Stoll, 1813)  
*Acanthacris elgonensis* Sjostedt, 1932  
*Acanthacris ruficornis* (Fabricius, 1787)  
*Pachyacris vinosa* (Walker, 1870)  
*Austracris guttulosa* (Walker, 1870)  
*Patanga succincta* (Johannson, 1763)  
*Patanga japonica* (Bolivar, 1898)  
*Valanga nigricornis* (Burmeister, 1838)  
*Valanga maculicollis* (Walker, 1870)  
*Melicodes tenebrosa* (Walker, 1870)  
*Anacridium aegyptium* (Linnaeus, 1764)  
*Halmenus robustus* Scudder, 1893  
*S. americana* (Drury, 1773)  
*S. piceifrons* Walker, 1870  
*S. gregaria* (Forskål, 1775)  
*S. cancellata* (Serville, 1839)  
*S. centralis* Dirsh, 1974  
*S. subspurcata* Walker, 1870  
*S. pallens* (Thunberg, 1815)  
*S. serialis serialis* (Thunberg, 1815)  
*S. serialis cubense* (Saussure, 1861)  
*S. melanocera* (Stål, 1861)  
*S. literosa* (Walker, 1870)  
*S. camerata* Scudder, 1899  
*S. braziliensis* Dirsh, 1974  
*S. flavofasciata* (De Geer, 1773)  
*S. interrita* Scudder, 1899  
*S. quisqueya* Rehn & Hebard, 1938  
*S. diversipes* Hebard, 1923  
*S. alutacea* (Harris, 1841)  
*S. rubiginosa* (Harris, 1863)  
*S. lineata* Scudder, 1899  
*S. shoshone* (Thomas, 1873)  
*S. obscura* (Fabricius, 1798)

*S. albolineata* (Thomas, 1875)  
*S. ceratiola* Hubbell & Walker, 1928  
*S. damnifica* (Saussure, 1861)  
*S. nitens nitens* A (Thunberg, 1815) [Western U.S.]  
*S. nitens nitens* B (Thunberg, 1815) [Brazil]  
*S. nitens nitens* C (Thunberg, 1815) [Vera Cruz, Mexico]  
*S. nitens nitens* D (Thunberg, 1815) [Taumalipas, Mexico]  
*S. nitens caribeana* Dirsh, 1974  
*S. separata* Scudder, 1899  
*S. beckeri* Dirsh, 1974  
*S. nov*

## **Electronic Appendix B**

### Characters and character states.

0. Antennae length: shorter than head+pronotum = 0; as long as head+pronotum = 1; longer than head+pronotum = 2.
1. Antennae length (from 0:2) (- = not applicable): slightly longer than head+pronotum = 0; much longer than head+pronotum = 1.
2. Tegmina length: much longer than tip of abdomen = 0; slightly longer than tip of abdomen = 1; reduced = 2.
3. Tegmina distal end colour: partially transparent = 0; not transparent = 1.
4. Tegmina pattern: no pattern or weak mottling = 0; distinct mottling = 1; numerous distinct dark patch = 2; distinct band pattern = 3.
5. Outer margin of tegmina: curved = 0; straight = 1.
6. Hind wing colour: colourless = 0; smoke-colour = 1; centre-coloured = 2; yellow tint = 3.
7. Pronotum: median carina: low (as in americana) = 0; moderate (as in alutacea) = 1; distinctly tectiform (as in damnifica) = 2; highly keeled = 3.
8. Pronotum dorsal integument: without velvety background = 0; with velvety background = 1.
9. Pronotum dorsal integument (from 8:0): deeply punctured = 0; rugose = 1; granulose = 2; wrinkled = 3.
10. Pronotum dorsal integument (from 9:3): indistinctly wrinkled = 0; distinctly wrinkled = 1; almost rugose = 2.
11. Pronotum: lateral prozona integument: velvety = 0; waxy smooth = 1; slightly wrinkled = 2; highly rugose = 3.
12. Pronotum metazona integument: irregularly pitted = 0; finely pitted = 1; highly rugose = 2.
13. Pronotum setae: sparse = 0; numerous and short = 1; numerous and long = 2.
14. Posterior margin of metazona: round (obtuse) = 0; semi-pointed = 1; highly angular = 2.
15. Shape of pronotum: prozona slightly constricted = 0; prozona not constricted = 1.
16. Lateral prozona of pronotum: distinct banding pattern absent = 0; distinct banding pattern present = 1.
17. small granules on pronotum (from 16:0): absent = 0; present = 1.
18. lateral prozona of pronotum with distinct banding (from 16:1): base diagonally white = 0; two distinct black bands = 1; one distinct band = 2; wide white band in the middle = 3.
19. Prosternal process: cylindrical = 0; inflated and strongly curved backward (as in outgroups) = 1.
20. Of cylindrical process: straight = 0; slightly curved backward = 1; almost reaching sternum (as in pallens) = 2.
21. Male subgenital plate: conical = 0; lobed = 1.

22. Male subgenital plate (from 21:1) (- = not applicable): slightly trilobed = 0; highly trilobed = 1; bilobed = 2.
23. Male subgenital plate distance between apex and phallus: long = 0; short = 1.
24. Subgenital plate profile (from 22:2): distinctly narrowing toward apex = 0; not narrowing toward apex = 1.
25. Of bilobed subgenital plate (from 22:2): apex as long as base = 0; apex slightly narrower than base = 1; apex much narrower than base = 2.
26. Male epiproct: a pair of tubercles absent = 0; a pair of tubercles present = 1.
27. Male epiproct: lateral lobe: slightly projecting forward = 0; not projecting forward = 1.
28. Male epiproct: lateral groove: absent = 0; present = 1.
29. Male cercus: shape: quadrate = 0; conical = 1; elongated = 2. [additive].
30. Male cercus: (from 29:2) (- = not applicable): pointed = 0; hooked = 1.
31. Male cercus (from 29:0): not inflated = 0; inflated at base = 1.
32. Male cercus (from 29:0): narrowing toward apex = 0; not narrowing toward apex = 1.
33. Male cercus (from 32:0): upper margin sharply protruding = 0; rectangular = 1; almost round = 2.
34. Male cercus (from 32:1): length slightly longer than width = 0; length 1.5 times longer than width = 1; length twice the width = 2.
35. Outer hind tibia spine: short and numbers between 8 and 10 = 0; long and 6 spines = 1.
36. Male anterior femur: not inflated = 0; inflated = 1.
37. Epiphallus: angle of lophi: almost perpendicular to bridge = 0; parallel to bridge = 1.
38. Epiphallus (distance between upper lobes): width of bridge very long = 0; width of bridge not long = 1.
39. Epiphallus (from 41:0): distance between lophi very long = 0; distance between lophi short = 1.
40. Epiphallus: lophi: thick and bulbous = 0; thin at the apex and bulbous at the base = 1.
41. Epiphallus: lophi shape (from 40:1): narrowly elongated = 0; very wide at the base = 1; triangular = 2.
42. Epiphallus: lophi shape (from 41:2): right triangular = 0; inflated triangular = 1; lamelliform = 2; crested = 3.
43. Epiphallus: ancorae: projection at the interior angle of upper lobe = 0; slight projection in the middle of upper lobe = 1; absent = 2.
44. Epiphallus: bridge: thick = 0; thin plate-like = 1.
45. Cingulum: shape of zygoma: semicircular = 0; small and narrowing toward apex = 1; elongated = 2.
46. Cingulum: size of zygoma (from 45:2) (- = not applicable): slightly elongated = 0; highly elongated = 1.
47. Cingulum: apical sclerotization of zygoma (from 45:0): constricted in the middle = 0; parallel = 1; sinuate = 2.
48. Cingulum: rami (from 45:0): bulbousness absent = 0; bulbousness present = 1.
49. Cingulum: rami (from 48:1): weakly bulbous = 0; distinctly bulbous = 1.
50. Endophallus: valve of cingulum: straight = 0; twisted = 1; bent outward = 2.
51. Endophallus: valve of cingulum: distinctly lobed = 0; slender = 1.
52. Endophallus: length of valve of cingulum: very long = 0; moderate = 1.
53. Ectophallic sclerite: length: elongated = 0; short = 1.
54. Ectophallic sclerite (from 53:1): round = 0; middle projecting = 1; middle constricted = 2.
55. Ectophallic sclerite shape (from 54:2): flattened = 0; elongated = 1.
56. Female subgenital plate: lateral lobe: slightly projecting forward = 0; not projecting forward = 1; lateral end forming a distinct lobe = 2; forming sharp triangular lobe = 3.

