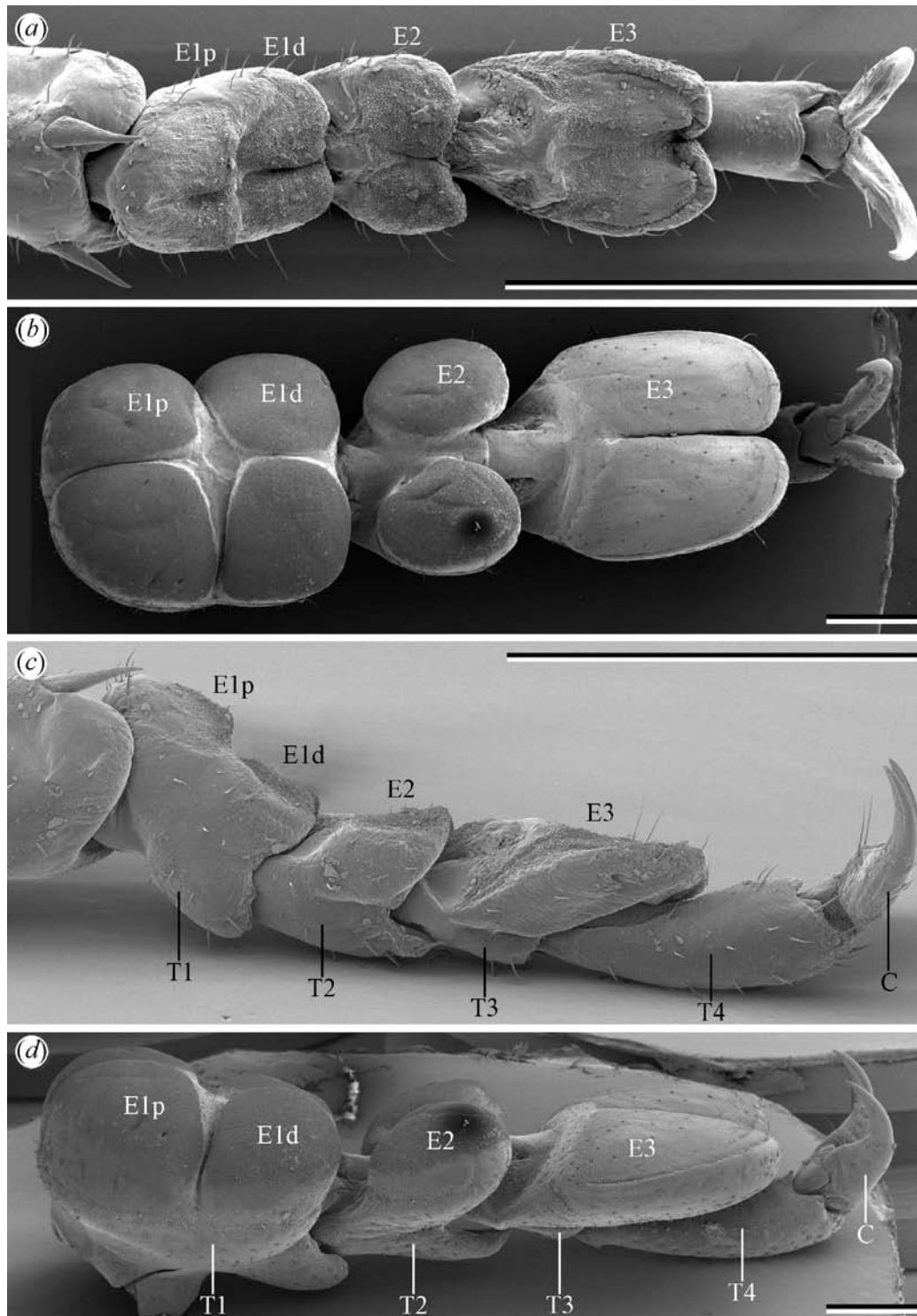


Supplementary materials for

Grohmann, C.; Henze, M.J.; Nørgaard, T. & Gorb, S.N. (2015) **Two functional types of attachment pads on a single foot in the Namibia bush cricket *Acanthoproctus diadematus* (Orthoptera: Tettigoniidae).** *Proc. R. Soc. Lond. B.*

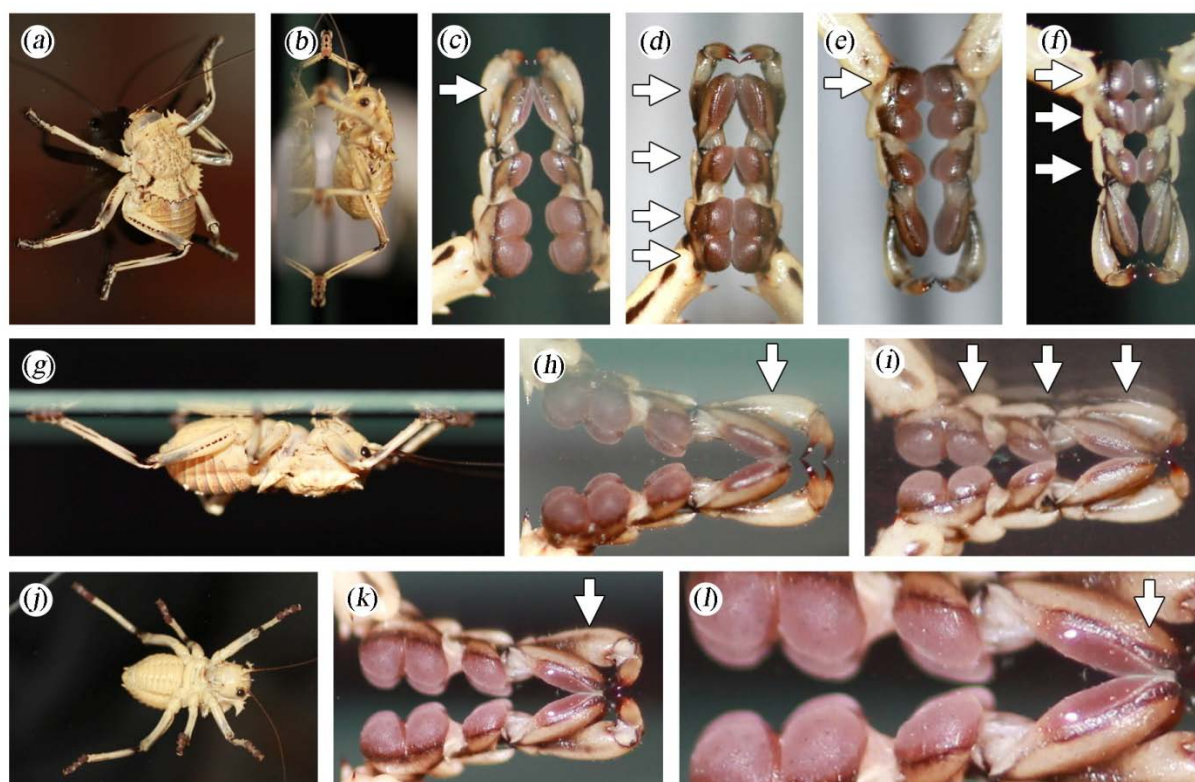


**Figure S1:** Comparison between the tarsus of a larval (*a, c*) and a female (*b, d*) *A. diadematus*. (*a, c*) Ventral views. (*b, d*) Lateral views. E1p, E1d: Proximal and distal euplantulae on tarsomere 1. E2, E3: Euplantulae on tarsomeres 2 and 3. T1-T4: Tarsomeres (tarsal segments) 1-4. Scale bars: 1 mm.

**Text S1:** Detailed description of the methods applied in the behavioural experiments (see 2.c in the main document).

In order to investigate how *A. diadematus* uses its different euplantulae during locomotion, we let four larvae (three males and one female, 85 to 138 days old and weighing 1 to 2 g), adhere to a glass plate in different orientations: i) horizontal with the animal standing upright, ii) horizontal with the animal hanging upside down, iii) vertical with the animal facing up and iv) vertical with the animal facing down. For each larva, we took five to seven independent photos of the tarsi on its fore-, middle and hind legs each in each of the four positions. This resulted in a total sample size of 21 to 24 images per fore-, middle and hind leg in each position (supplementary material, table S1). The pictures were taken from the side, at an angle of close to 0° to the plane of the glass plate, with an EF 100 mm *f*/2.8 Macro USM lens on an EOS 550D camera (both Canon). Two photos were considered to be independent, if the cricket changed its position in between. We did not take photos while the cricket was moving or clinging to the rim of the glass plate. The surface was cleaned prior to any new trial, i.e. before the same or another larva was allowed to adhere to the same spot.

Based on the photos, we determined which euplantulae were in surface contact by analysing which of them touched their mirror image on the glass plate (supplementary material, figure S2). Our criterion was binary, considering an euplantula being in contact with the glass plate, if there was any contact between the euplantula and its mirror image, and assuming no contact, if there was no visible contact at all. We summarized the data of all animals and calculated the proportion of observations, in which the different euplantulae were in touch with the glass plate in each of the four situations mentioned above.



**Figure S2:** Example images of *A. diadematus* and its tarsi. The pictures were taken to evaluate, which euplantulae were in contact with the glass plate (arrows). (a-f) Larva attached to a vertical glass plate, head up. (a, b) Overview. (c) Middle leg. (d) Foreleg. (e, f) Hind leg. (g-l) Larva attached below a horizontal glass plate. (g, j) Overview. (h) Foreleg. (i, k, l) Middle leg.

**Table S1:** Number of observations in which the euplantulae were in contact with the glass plate, shown separately for the different orientations of the glass surface and the cricket.

| Orientation of the glass plate | Orientation of the cricket | Leg        | Number of observations, in which the respective euplantula touched the glass plate |     |    |    | Total number of observations per leg |
|--------------------------------|----------------------------|------------|--|-----|----|----|--------------------------------------|
|                                |                            |            | E1p  | E1d | E2 | E3 |                                      |
| horizontal                     | upright                    | foreleg    | 21   | 21  | 19 | 11 | 21                                   |
| horizontal                     | upright                    | middle leg | 21   | 21  | 20 | 8  | 21                                   |
| horizontal                     | upright                    | hind leg   | 21   | 20  | 19 | 10 | 21                                   |
| horizontal                     | upside down                | foreleg    | 11   | 16  | 20 | 24 | 24                                   |
| horizontal                     | upside down                | middle leg | 15   | 16  | 17 | 24 | 24                                   |
| horizontal                     | upside down                | hind leg   | 14   | 12  | 18 | 24 | 24                                   |
| vertical                       | facing up                  | foreleg    | 20   | 20  | 19 | 20 | 23                                   |
| vertical                       | facing up                  | middle leg | 20   | 20  | 19 | 21 | 22                                   |
| vertical                       | facing up                  | hind leg   | 24   | 21  | 13 | 14 | 24                                   |
| vertical                       | facing down                | foreleg    | 22   | 22  | 21 | 16 | 22                                   |
| vertical                       | facing down                | middle leg | 20   | 20  | 18 | 20 | 23                                   |
| vertical                       | facing down                | hind leg   | 21   | 21  | 21 | 21 | 22                                   |